

The United States

MILLER

AND THE MILLING ENGINEER.

Sixteenth Year.—No. 3.

MILWAUKEE, MARCH, 1891.

Subscription Price, \$1.00 Per Year.

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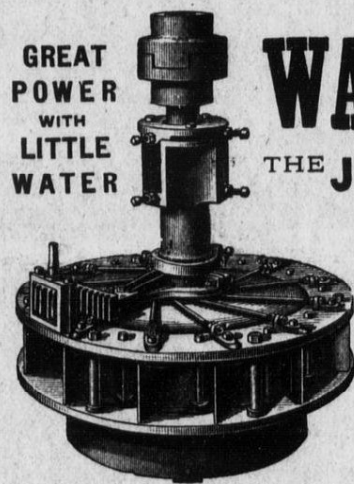
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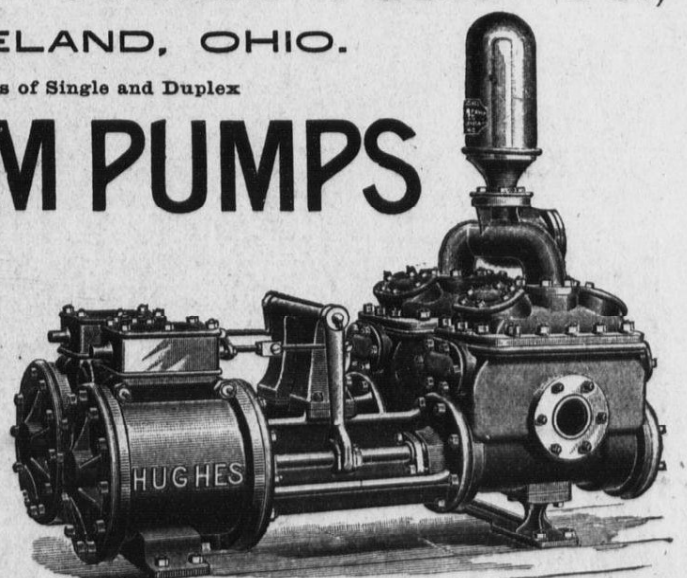
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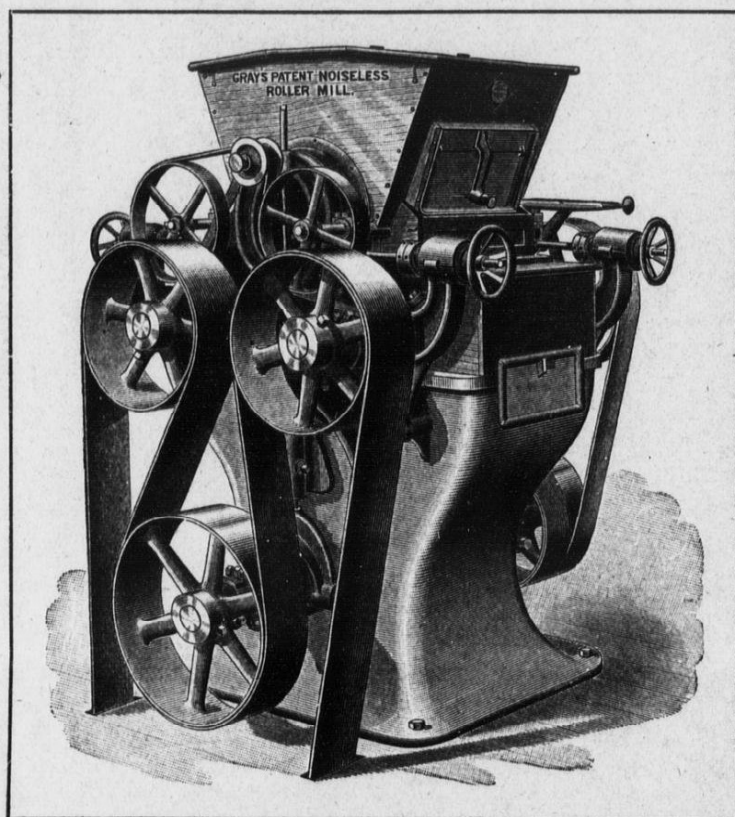
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revolutionized
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MILWAUKEE, WIS.

The United States MILLER

AND THE MILLING ENGINEER.

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MILWAUKEE, MARCH, 1891.

Subscription Price, \$1.00 Per Year.

[Special Correspondence UNITED STATES MILLER AND MILLING ENGINEER.]

FROM DONALDSON ON THE ROAD.

The Views of a Flour Salesman—How the Jobbers Talk of the Present Market—The absorbing Question is "What are the People Living on"—New Mills in the Shenandoah Valley—South American Flour Trade, Etc.

THE question, "What do the people eat or what do they live on," is becoming a very serious matter with most of your patrons, the millers of the country, and they are not the only class of people that are trying to solve the problem.

I have been a bull on the market and I cannot now divest myself of the conviction that my reasoning has been correct, but I have been so often disappointed that I am with the millers, asking the above question.

The "staff of life" has become "a bruised reed." Now that I am no longer a buyer of flour but a seller only of other men's products, my testimony may be added to the report of others and taken for what it is worth, but in the mouth of three witnesses the truth should be established.

Now, there are many millers that believe that the jobbers are reaping a golden harvest, while they—the millers—are working for glory. Let me tell you, brother dusties, I have been among this class some three months, and the following is a fair specimen of the experience of the jobbers generally: Soliciting orders from a prominent jobber here to-day. He said, no sir; I would like to dispose of some that cost me less than that, at what it cost. I assured him it was good property. Yes, said he, I thought so and began on the crop at \$5.75 and have been obliged to sell down and replace to the present time and now I can't sell at all. I don't know what is the matter; sometimes I think my customers have all left me; that I have offended them in some way; that some one has got them away; but I find in looking up their stock that my brands are on their shelves and careful inquiry reveals the fact that they are not selling. Tell me what the people have found to live on?

Flour is the cheapest article on the whole list and people are crying "hard times," and yet nobody seems to be using flour.

Now, Mr. Editor; assure the millers that the jobbers, so far, have not grown fat on the profits of the trade.

They are all loaded to the muzzle, 'tis true, and if, if they shall be found to be well loaded when the long looked for boom shall come, they may make something in a speculative way, but so far they are all sick with hope long deferred, and they are bitterly cursing the miller for overproduction.

With wheat above the \$ mark and flour below the \$5 mark the miller must certainly be tempted to run his mill to its full capacity to get rich.

Well, millers, dealers, readers, all, whatever may be before us as a cause to effect the price of the commodity,

we must not now shut our eyes to the fact that there are large stores on hand and that 90 days will bring a new crop to mill in some parts of our great country. Nevertheless, wheat and flour will be wanted before the new crop is available.

* * *

Maryland and Virginia had good crops of wheat last season and they have large areas seeded this season and it is looking fine. There can be no serious danger of damage to the crop this season, except on low land where the excessive rain may choke it.

* * *

There will be a number of new flour mills erected along the Shenandoah and Cumberland valley.

The people in those sections are counting on great things from the reciprocity treaty with South America. That article is thought to be the greatest thing yet for the South. I think they are right, and James G. Blaine is getting due credit for it, whether he or the President deserves it.

* * *

The Rio flour trade which at present is fairly respectable in volume, is exclusively in Baltimore brands, and at prices said to be considerably above other brands of flour. Why this should be so is not quite clear to the writer.

This matter and this South American market might be a good subject to discuss at the Millers' National Convention.

DONALDSON.

Philadelphia, March 10, 1891.

WHAT IS TO BE UNDERSTOOD BY GOOD FLOUR?

By AUGUSTIN MAULVAULT.

WHAT is to be understood by good flour? 1. Is it that which gives the most bread? 2. Is it that which gives it the best flavor? 3. Is it that most easily preserved? 4. Is it that which makes the whitest bread? Finally, 5. Is it that which makes the bread most nutritious? I now take up the fourth question. Is it that which makes the whitest bread?

MOISTURE.—Well harvested wheat, white or red, within a radius of about 150 miles round Paris contains about fifteen per cent. of moisture. In the space of one year it loses about three per cent. As the wheat grows old and dries, the millers find it necessary to moisten the grain; they dampen it with two or three per cent of water, according to the hygrometric condition of the air, in order to make it swell and become unwrinkled, and avoid, in grinding, the pulverization of the bran. If the wheat is dampened excessively, owing to the heat developed by the grinding only causes a slight evaporation of water; the flour retains a surplus quantity, which causes fermentation and may then make it to lose as much as ten per cent. of its market value, according to the rates; and even, if the damage is great, makes it unfit for panification, even when mixed with newly-made flours; it

can then only be used for the manufacture of starch and paste.*

There is a fact demonstrated in chemistry. It is that a body absorbs *proportionally* more water according to its greater dryness. It is thus with flour. When flour contains more than 15 per cent. of moisture every unit it possesses in addition makes the baker lose 11. This is a loss for him on his average yield of bread, yield on which is based the local tax of the price of bread. Bakers find it very advantageous to buy flour only from millers who give them genuine guarantees of regularity in their fabrication.

CONCLUSION.—Well-preserved flour is a certain indication of good manufacture, but is not an absolute certainty of good quality.

The fourth question was—Is it that which makes the whitest bread?

WHITENESS.—Very white flours are produced with light wheats, but on condition of diminishing the extraction of white groats, and consequently increasing the quantity of brown groats for the production of inferior flours.

These flours, especially if produced with soft wheat, are deceptive to purchasers, for these flours and all their derivatives are of inferior qualities, in spite of their fine appearance; and it is to guard against the inferiority of these products that buyers must appeal to their theoretical and practical knowledge.

Bakers only obtain from these white flours an amount of bread less than one hundred loaves; they are deceptive to his purse, are the plague of the journeyman baker, and give bread of small nutritive properties.

These flours should never be employed except mixed with superior varieties; however, to make them panifiable mix two to three per cent. of bean flour, that enables them to relax less, and to better support fermentation. That makes them rise, as the journeyman bakers say.

This addition of bean flour does not constitute a commercial fraud, on the contrary, because it only permits these flours to be made panifiable; it rather constitutes an industrial progress; it is for the purchaser to know how to appreciate them, and pay for them what they are worth.

CONCLUSION.—The great whiteness of a flour is not a proof of the good quality; it is only an uncertain indication.—*The British and Foreign Confectioner*, London.

BREAD-MAKING QUALITIES OF CEREALS.

THE chief difference in barley flour, as compared with wheat, is not in the amount of the albuminoid bodies, but in their character. If you take barley flour and knead it with water, as one often does with wheat flour, you would, after washing for some time, find that there was a very small quantity of this crude gluten left, and that barley flour would be a very inappropriate material to form a good loaf with. Barley flour has been used for ages, but if anyone has been in the habit

* Manufacturers of paste prefer to purchase for making their paste flour of a known type, especially very glutinous, without seeking for whiteness, because they can mix with it potato fecula, always in the same proportion, to obtain a uniform product. In order for them to relinquish this condition of purchase the spoiled flour offered to them must present some real advantage: certain manufacturers of paste prefer never to use damaged flour, to prevent trouble in their manufacture.

of eating barley bread, they will find it is a heavy, sticky, doughy sort of mass. It is more like wheat treated by the boiling process than by the oven process. Rye flour, very rich in the total quantities of albuminoids, is so deficient in crude gluten, that when it is kneaded with water there is practically nothing left, the whole of it passes away along with the starch; not that it is soluble, but it is not coherent, and therefore does not form that tough, elastic mass, which is so characteristic of wheat, under the same conditions. Precisely the same may be said of oat flour. Oat flour fermented with yeast in the ordinary way is a heavy mass, and practically the same may be said of maize. Now rye flour is very much used in the north of Europe for the purpose of making bread; and it is with rye flour chiefly that the leaven process is employed; and those who have travelled in the northern parts of Europe will remember perfectly well the dark kind of bread that rye, fermented by leaven gives. To a great extent the same remarks as to the want of cohering elastic gluten would apply to oats, or barley, or any other cereal than wheat. Wheat, then, is pre-eminently fitted for the purpose of making bread by the fermentation process, since it is so rich in this tough, elastic gluten, which holds in the carbonic acid, and enables you to have a light, aerated bread.

THE AMPERE AND THE VOLT.

DURING a recent examination a lawyer put the following question to Thomas A. Edison:

"Explain what is meant by the number of volts in an electric current?" To which he replied:

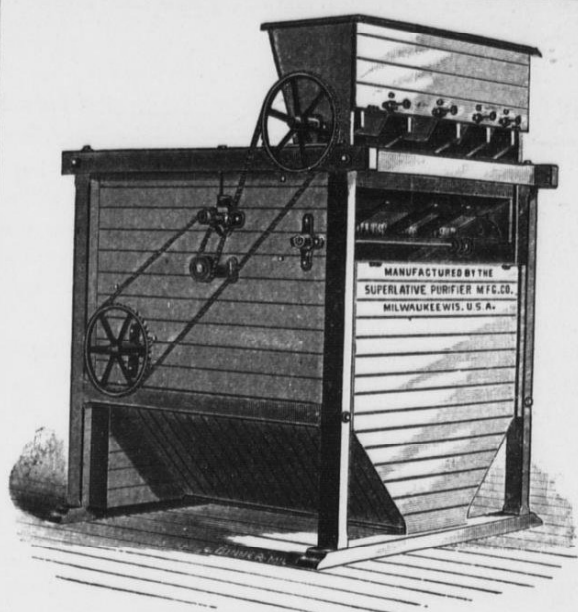
"I will have to use the analogy of a waterfall to explain. Say we have a current of water and a turbine wheel. If I have a turbine wheel and allow a thousand gallons per second to fall from a height of one foot on the turbine, I get a certain power, we will say one horse power. Now the one foot fall will represent one volt of pressure in electricity, and the thousand gallons will represent the ampere or the amount of current. We will call that one ampere. Thus we have a thousand gallons of water or one ampere falling one foot or one volt or under one volt of pressure, and the water working the turbine gives one horse power. If, now, we go a thousand feet high, and take one gallon of water and let it fall on the turbine wheel, we have got the same power as we had before, namely, one horse power. We have got a thousand times less current or less water, and we will have a thousandth of an ampere in place of one ampere, and we will have a thousand volts in place of one volt, and we will have a fall of water a thousand feet as against one foot. Now the fall of water or the height from which it falls, is the pressure or volts in electricity, and the amount of water is the ampere. It will be seen that a thousand gallons a minute falling on a man at a height of one foot would be no danger to the man, and that if we took one gallon and took it up a thousand feet and let it fall down it would crush him. So it is not the quantity or current of water that does the damage, but it is the velocity or pressure that produces the effect."

"We are only sorry we did not place one in a year ago"

Don't put off buying the machine referred to. Every day will add to your regret that you also have not put in a

NEW ERA SCALPER

Occupies small space, Requires nominal power and Does not scour the bran.



One machine will handle four breaks in a 100 bbl. mill or one break in a 500 bbl. mill.

PRICES LOW.

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NEW PHILADELPHIA, O., March 9, 1891.
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Gentlemen—We started the Scalper the 7th, and it is giving good satisfaction. We can see quite a difference in the color of our flour, and are making more middlings than we did with our old reels. We are only sorry that we did not place one in a year ago.

Yours truly,

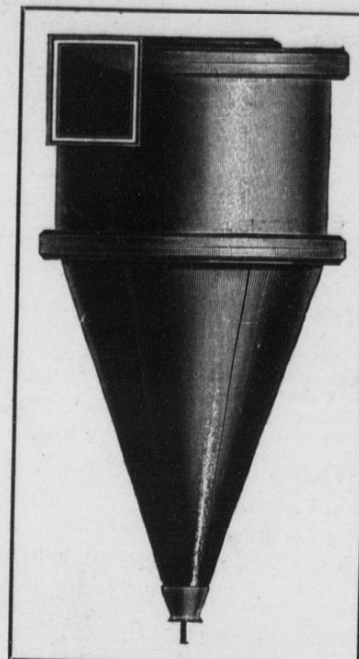
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GUARANTEED
TO DO
FIRST-CLASS
WORK, AND
TRIAL ALLOWED.
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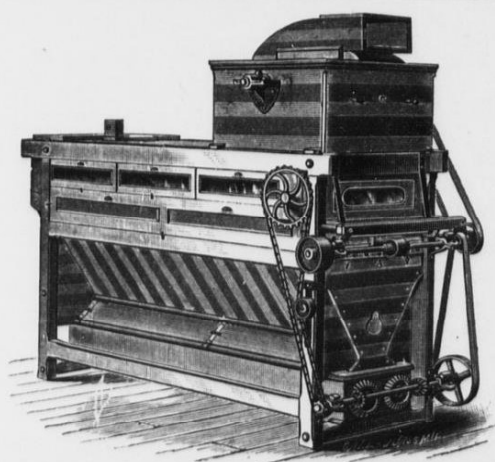
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MACHINE, AND
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AGAINST SUITS.

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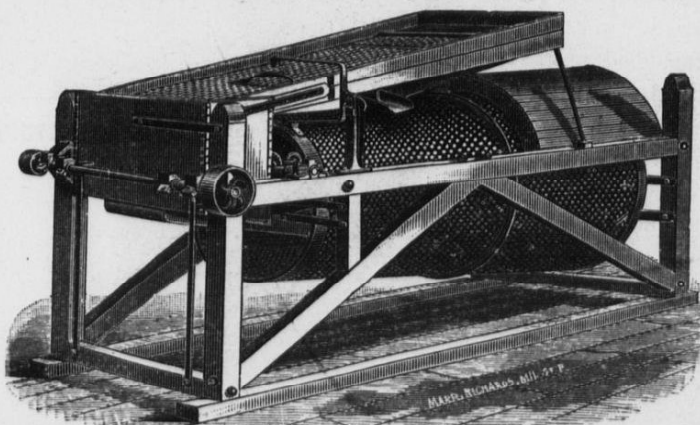
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The Kurth Cockle Separator



IF you want a Cockle Separator, write us. We can satisfy you both as to style and price. We build machines with reel or shaking graders, and with steel or zinc cylinders, as desired. Also in connection with Richardson's Dustless Oat Separator Attachment.

PRICES GREATLY REDUCED.

WE are manufacturers of Perforated and Indented Metal, and solicit orders for anything in this line, which we can fill promptly.

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UNITED STATES MILLER AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

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To American subscribers, postage prepaid..... \$1.00

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All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, MARCH, 1891.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. You will thereby oblige not only this paper, but the advertisers.

MILWAUKEE AMUSEMENTS.

DAVIDSON OPERA HOUSE—Every evening, Saturday and Sunday Matinees.

BIJOU THEATER—Every evening, Wednesday, Saturday and Sunday Matinees.

ACADEMY OF MUSIC—Every evening and usual matinees.

STANDARD THEATER—Every evening and usual matinees.

PEOPLES THEATER—Every evening and usual matinees.

GERMAN STADT THEATER—Regular performances Wednesday, Friday and Sunday evenings.

LAYTON ART GALLERY—Free Tuesdays, Thursdays and Saturdays. Admission 25 cents on Wednesdays and Fridays.

PUBLIC MUSEUM—Open daily. Exposition building. Visitors to Milwaukee in either summer or winter cannot fail to find amusements suited to their taste.

THE next meeting of the South Dakota Millers' Association will be held at Madison, S. D., Aug. 4, 1891.

THE next meeting of the Indiana Millers' Association will be held at Evansville, Ind., April 27th and 28th.

MILWAUKEE mill-builders and furnishers report business unusually good for this season of the year. Engine builders are all kept very busy.

EVERY mill-furnisher, flour-broker and miller should have a copy of "Cawker's American Flour Mill & Grain Elevator Directory". Price \$10.00. See adv. elsewhere.

THE report of the U. S. Agricultural Department shows that on March 1, 1891, there were 112,000,000 bushels of wheat in farmer's hands. Bradstreet's places the amount at 100,437,275.

OWING to illness in his family and the pressure of other duties, we regret to announce that our able contributor, Mr. J. F. Mueller will be unable to write more for the *United States Miller*, for the present, at least.

ELSEWHERE in this number we publish an article on "Reel Construction," taken from our esteemed contemporary, *The Miller* (London). It is an interesting article and will repay careful perusal by our readers.

OUR Baltimore correspondent "Oriole" having accepted another assignment will not contribute for the *United States Miller* again for some time. We are making other arrangements and will have an able correspondent from there by another month.

MILLERS will do well to note very carefully that there is now an unusually brisk demand for good rye-flour and a first class article of feed. It won't do to run in a whole straw stack and all the loose dirt in the neighborhood into the feed-pile any more.

WE take pleasure in announcing to our readers the fact that we have secured a new technical writer for this

journal—one whose contributions will be appreciated by the milling public. We, at his request, withhold his name until his first article appears.

CONGRESS has adjourned and has made itself notorious by making appropriations amounting to a round billion of dollars. Many of these appropriations were extravagant and many others, to say the least, of doubtful necessity for the Nation's welfare.

THE subscription to the fund to establish the Millers' League has reached the sum of \$11,850 out of the \$20,000 desired. It is to be hoped that the millers of this country will take interest enough in this matter to subscribe the amount necessary to give it a trial.

THE Congress of Uruguay has increased the duty on breadstuffs to the following figures: Maize (corn), 80 cents per 100 kilos; wheats, \$1.35 per 100 kilos; wheat flour, \$2.70 per 100 kilos; clover and forage, \$1.00 per 100 kilos. A kilo is two and one-fifth pounds.

THROUGH the courtesy of Hon. Patrick Egan, Minister Plenipotentiary of the United States to Chili, S. A., we are favored with copies of the proceedings of The Milling Congress and a catalogue of the display at the Millers' Exposition held in Santiago, Chili, during the year 1890.

SINCE the recent election in Canada, showing the drift of public opinion, it is believed that a broad reciprocity treaty will be made by Canada with the United States similar to the one recently made by Newfoundland. Such a treaty will, we think, prove beneficial to both countries, especially to Canada.

THE total number of explosions occurring in flour mills and grain elevators in the United States during the year 1890 were five. Considering the great number of these establishments there are in this country, the showing as compared with accidents of other natures is extremely favorable.

NOW that seeding and planting time is near at hand, when the "horny handed son of toil" will have his thoughts turned to healthy subjects for cogitation, we may expect to hear little more from the "Farmers' Alliance" until after harvest and it is a question if some other "ism" will not come to the front then.

IN Indiana hereafter a stockholder in a corporation will be allowed but one vote, no matter how many shares of stock he may own. It will be difficult to wreck a railroad where such a law obtains and the big fish are all muzzled to prevent their swallowing the little ones. The idea is borrowed from the English statutes.

IN the suit of Lee vs. Pillsbury, which is defended by the Cockle Separator Mfg. Co., of this city, a motion for a new trial was argued and it was decided to grant a new trial, which will review the entire proceedings and will doubtless produce an entirely different result, as new evidence of an important nature has been discovered by the defendants.

LATEST reports indicate that the Millers' European excursion party is growing in numbers slowly, but is growing. If the excursion proves to be a success *The Northwestern Miller* will be entitled to all the glory, and if it fails

that paper will get a full quota of curses. We are not sure even if it proves to be a "howling success," but what that paper will get more kicks than kisses anyway, as that is frequently the way hard work is rewarded.

A "BADGER CLUB" composed of former residents of Wisconsin (the Badger State), has been organized at Portland, Ore., of which John B. Cleland is King Badger and A. C. Sanford is Corresponding Badger. The club rooms are in the Holton House, named after our fellow townsman Hon. E. D. Holton, and all Wisconsin people visiting Oregon will find it pleasant to make themselves known at the club.

IT seems now more than probable that West Superior will soon have an immense flouring mill. A. A. Freeman's mill at La Crosse, it will be remembered, was destroyed by fire some months ago, and since that time he has been considering whether best to rebuild there or elsewhere. It is now reported that he will locate in West Superior. The capital stock of his company will be \$250,000, and citizens of West Superior have already subscribed \$50,000 of the \$100,000 which they are requested to take. The construction of another big mill is not pleasant news for small mill-owners in the North-west.

THE N. Y. *Commercial Bulletin* of March 14th, in concluding its financial article, says:

"All these things considered, the events that are passing do not justify any alarm in this country. If some pressure comes from Europe, it will have to be met of course, but is likely to pass without much visible effect except perhaps in the current prices of some stocks. The enormous industrial production of the country, and its rapid growth in population and wealth, put it comparatively beyond the reach of foreign financial storms, and make its money market properly the strongest in the world. It might be infinitely stronger if wiser financial measures by the Government ensured the support of all the conservative, productive and commercial forces of the country in every emergency. But it is nevertheless so strong that many financiers of Europe may well envy those of New York.

IN a communication received from Messrs. J. A. Hambleton & Co., brokers, of New York city, they say:

The quick rebound which this country made from the December panic showed the stability of our securities. Except for the recurrence of the foreign troubles we should now be enjoying greater activity and enhanced values, but as long as London remains under a financial cloud there is not much hope of any decided improvement here. General trade is fairly good and, notwithstanding a short crop year, the railroads are transacting a large business and showing satisfactory earnings. Crop prospects for the coming season are promising. The winter has been favorable for fall wheat and the present cold snap almost assures a good fruit year. Altogether, the situation is quite favorable, and as London has already emptied its strong boxes on this market, as soon as the financial skies brighten values should improve.

THE N. Y. *Commercial Bulletin* has the following to say in relation to the Congress just adjourned:

"To business men, and to men of

commerce and capital, the chief result of the Fifty-first Congress is a negative one. It did some good things and some that were not good, but after all its greatest merit is that it did not do one thing. It refused to pass, and with much hope it may be said the Fifty-first Congress for ever killed, the scheme for free coinage of silver. Partisanship will differ greatly regarding most other portions of its record. Partisanship will find much to censure, from the beginning of the first session to the end of the last, in the conduct of the speaker, and of the majority in the House. But the commercial community, the men throughout the country who have capital and business interests at stake, will feel that in any case they owe candid thanks to the House and to Speaker Reed for the defeat of the Silver bill.

MILWAUKEE REVIEW.

THE week ending the 14th inst. witnessed something of a revival in general business and the banks report a more active demand for money—in some quarters more active than the banks could supply. The discount market consequently is very firm at 6 and 7 per cent—the outside figure being the prevailing one. The stock of wheat on the 14th was estimated at 431,538 bushels against 923,320 bushels the corresponding day last year, 715,000 bushels in 1889 and 2,190,000 bushels in 1888.

The market opened rather firm at 97½c, sold up to 98½c, and then down to 96c. Foreign markets were firm, and the weather, with the thawing and freezing, is considered generally unfavorable for the growing winter wheat. At the same time the receipts at primaries are larger than at the same time last year, while the exports are only moderate. There were also reports of financial troubles in Paris, but the market stood up pretty well considering the depressing influences brought to bear upon it. The millers are still bearish, and the later cables were also easier. The market continues nervous and is a most excellent one for speculative purposes.

The close was quiet. May 96½; cash, ruled even with May. July 1½c under and Sept. 5c under.

The following table shows the closing prices for wheat and course grain on 'Change on Saturday, the 14, as compared with those of same date last year:

	1891.	1890.
No. 1 Northern, o. t.....	\$1.01	.81
No. 2 Spring, o. t.....	.96½	.72½
No. 2 do. l. s.....	.96½	.71½
No. 2 Barley, l. s.....	.67	.40½
No. 1 Rye, l. s.....	.92½	.42½
No. 3 Corn, o. t.....	.57½	.28
No. 2 Wh. Oats o. t.....	.51½	.28

The average daily flour production in the city for the week ending the 14th, was 4,700 barrels, against 5,150 the previous week and 3,675 for the corresponding time 1890. The secretary of the Chamber of Commerce reported the stock of flour in the city on the 1st inst. at 90,200 barrels, of which 30,200 barrels held by the mills and 60,000 barrels were in transit. Same time last year there was a stock of 122,000 barrels. The breadstuffs market here remain weak and irregular. Flour is quiet at following prices: No. 2 hard spring wheat patents, in bbls., 5.10@5.25; soft spring wheat patents, in bbls., 4.85@5.00; No. 3 wheat, in sacks, 4.40@4.75; clears, choice bakers', 4.00@4.25; No. 3 wheat, 3.50@3.75; straights, choice-bakers', 4.50@4.75; No. 3 do. 3.75@4.00; low grades, 2.50@3.50; winter straights, in bbls., 4.70@4.80; rye flour, in sacks, 4.00@4.25; in bbls. 4.40@4.70.

Millstuffs are firm but quiet. Prices range as follows: 19.25@19.50 for sacked bran and fine middlings; cornmeal, coarse, in bulk, 20.00@21.00; ground feed, oats and corn, 18.00@19.00.

CORRESPONDENCE.

[The following letters are all from our own special correspondents, and reflect their views and the views of the trade in the location from which they write.]

OUR LONDON LETTER.

Crop Conditions. — Colonial Imports. — The Market. — A new Milling Machine. — New Mills.

NOW that the late wheats have come up it is seen that there is almost as little fault to find with their condition as that of the early division of the crop. Such an early and favorable seed time has rarely been experienced, although there have been no dykes filled during this February, but they are not yet very low having been replenished when the frost broke up towards the end of January. Where plowing has gone on during the past week there has been often just enough frost to sweeten and break the fresh surface making a good seed bed, but the effect of the weather upon grain samples on offer at the various markets has been injurious to the milling condition; thus, farmer's supplies have been small so that the business in foreign sorts has been in favor of sellers. The British millers grist has now to be made up of samples for which they have to pay 33 to 40, as there is no cheap Danubian, or Indian, Persian, or La Plata wheats such as are generally on offer, sometimes as low as 26 to 28. It has been the rule in recent years to have plenty of foreign sorts of wheat 5 to 8, per quarter of 496 lbs. below the ordinary good sorts. Neither the new Indian harvest nor that of La Plata promises in the future very cheap, when 30 to 36, per quarter, being asked for good lots, from the Argentine Republic, Australia and New Zealand sorts sold at 38 to 42, Red Winter 37, Bombay red 33, Calcutta white 35, Danubian 33, Hungarian 35, Saxonska 37, Saganrog 35, and Azina 33 to 37, per quarter of 496 lbs. The trade for flour has been scarcely so steady as that of wheat. English country flour being sold freely, in London from 26 to 30, per sack of 280 lbs.

Out of £32,600,000 paid by the United Kingdom in 1890, for imports of breadstuffs, only £6,000,000 went to the British Colonies, including India. It is estimated here that Canada, with a steadily remunerative price could lay down another million acres to wheat, and that New Zealand and Australia could largely increase their produce under the same circumstances while the £7,482,000 paid to Russia in 1890 might easily be earned by India, to the double strengthening of the British Empire; however the British Colonies in India cannot immediately be prepared to take up the burden of keeping the old country in bread.

The British milling engineering trade this year has already seen some rapid progress as regards new machinery. One new machine is of a concentrated type and performs the breaking down of the wheat or reducing of the middlings, according to whether the rolls are grooved or smooth; the separation of the flour from the meal, and the broken particles of wheat or coarse middlings, and the purification of the middlings. These three operations are performed by the material passing through the rolls and falling into two series superposed in a rocking frame. There is a fan and dust collecting arrangement fixed on the top of the machine and the latest improved "tray of nozzles." With this machine the inventor Mr.

Higginbottom, of Liverpool, hopes to increase the percentage of patent flour by doing away with the trituration produced by elevating and conveying the products from one machine to another. The next machine which was privately exhibited this month and christened, the "Tornado," is a dust collector. Tests were made for over an hour with a variety of samples from woolen, cotton and flour mills. The dust-laden air being introduced at varying speeds to show the adaptability of the apparatus to all circumstances. A current of dust-laden air was introduced into the apparatus, having a velocity of about 700 feet per second, the quantity of air passing through the apparatus was about equal to 6,000 cubic feet per minute. The results were shown in the regular discharge of all the dust at one end and of pure air at the opposite end, the dust-laden air being introduced about the middle of the apparatus. The cost is very moderate and the floor space occupied being only about five feet by five feet and about ten feet in height. Several improvements have also recently been made by Messrs. E. R. & F. Turner, of London, in their "Omega" purifier, which is now arranged to collect its own dust.

A very interesting discussion is now proceeding in the columns of *The Miller*, as to the necessary roller surface required to produce a sack of flour, and when some further facts have come to light, I will endeavor to give some details that may be of interest to your readers.

The tenders for the construction of the roller flour mills for Messrs. James Tucker, limited, of Cardiff, have been sent in, and the selection will no doubt be made shortly. The mills are to have a capacity of 45 sacks of flour of 280 lbs. per hour. The 45 sacks will be produced by three plants, each capable of producing 15 sacks of flour per hour, from any mixture of wheat when required; but it is proposed when the plants are started that two of them shall work on soft and medium mixtures of wheat and the other on hard wheats. Two of these plants according to present arrangements will be driven by one engine and the remaining plant, wheat cleaning machinery and warehouse appliances will be driven by a second engine. These two engines are each to be capable of indicating 400 horse-power. The wheat cleaning machinery will be divided into three divisions, 1st, a preliminary cleaning, washing and drying system for the dirtiest wheat to treat 200 bushels an hour; 2nd, one of a capacity of 250 bushels per hour for cleaning ordinary wheat, and the other of a capacity of 125 bushels for cleaning hard wheat. An automatic weigher will precede and another will be fixed to each plant so as to gauge the loss by wheat cleaning, etc. The silo arrangement for receiving the wheat as it is discharged from the ships alongside the mill, are to be of a most elaborate description and the whole set of buildings will be fitted up with pumps, automatic sprinklers and other fire appliances for extinguishing any outbreak of fire. The entire premises will be lighted by electricity, and the flour warehouse and roller plants will be heated and ventilated so that the temperature of any floor may not get below 55 degrees when the outside air is 15 degrees below freezing. The syndicate that proposes to take over some 22 flour mills in Yorkshire and

Lincolnshire, has not made very much progress since my last letter. The prospectus is not likely to be issued for some time. Difficulties in the matter of valuation seem to be the cause of the delay. The statement that millers' profits twenty years ago ranged from 7 to 15 per sack has been much discussed in the north of England, where the general opinion points to 5 per sack as an outside figure. It is, however, generally agreed that at the present time 1 per sack is the average margin of profit, which is not a very attractive one from an outside investors' point of view.

It is estimated that the total quantity of cereals and farinaceous food substances exported from Russian ports in 1890 was 393,460,000 pounds. The corresponding quantity for 1889 was 437,889,000 pounds. The principal ports of export are: Odessa which is credited with exporting 85,302,000 pounds, Rostor with 46,394,000 pounds, Nikolaiev with 36,553,000 pounds, Liban with 31,556,000 pounds, St. Petersburg (port) with 26,214,000 pounds and Novorossick with 25,846,000.

L. MAYGROVE.

LONDON, March 5, '91.

OUR BUFFALO LETTER.

A New Elevator—Merchants' Exchange Matters—Interesting Milling Notes—A Buffalo Firm to Move to Milwaukee—Trade Comments—Geo. Urban's neat trick on Hotel Bell Boys—Freight Matters—Personals—Bad Break of a Milling Journal—A Compliment to a Milwaukee Milling Firm, etc.

A NEW elevator will be built on the site of the burned C. J. Wells. The spouting system instead of conveyors will be used and all modern improvements introduced. Capacity, 500,000 bushels.

President Scatterd, of the Merchants' Exchange, is a hard worker for the interest of the exchange, but is really giving no satisfaction. If he had not minded outside advice and gone about doing the business, as his own good common sense told him, those who pay most towards the running expenses of institutions would have backed him in any fight. As it is, they are disgusted with the weak stand he has made against a few bankers and others who know nothing about the inner workings of the exchange. The reappointment of Thurstone at \$3,000 salary was too much for the boys, especially as they knew the old man had worked the sympathy dodge on Mr. Scatterd and the rest of the trustees through the bankers. Then came the advance in dues to \$25, which also made sick those who understood the game. The excuse of buying \$39,000 worth of Board of Trade stock, in order to get control of the building, is all right for those who believe it is a good investment, but this opinion is not shared by all the members. One man could do all the work of the secretary's office in the Merchants' Exchange and a saving of three to four thousand dollars could be made in that direction without injuring the board in the least. The present board was elected on the promise that they would not advance the annual dues.

The Dodge mill has been shut down for several weeks to recut rolls. This is said to be the best rye mill in the country.

Head miller Schroeder, of the Attica mills, is kept busy between the Godfrey Pond mill at Batavia and his main charge at Attica, but he says it is enjoyable as he rather likes "hustling", especially as these journeys include a beautiful drive of about 20 miles. The

Godfrey Pond mill is taking in large quantities of wheat in exchange for Attica flour.

Mr. Fred. Ogden has returned from a pleasure trip to Florida. The vacation will do him good, as he has been a steady toiler for many months.

C. S. Thompson, now proprietor of the Star mills, who for many years ran a feed store on Main street, Attica, has retired from his old love, and will devote his time entirely to the mill.

Schoellkopf & Matthews have put in a new wheel of the Stout, Mills & Temple make to take the place of one which has for some time caused them considerable trouble.

In the matter of the legal publication of the annual report of the Attica mills which has raised some talk, especially as the old corporation still seems to be in existence, the explanation is that the old company cannot be dissolved until certain suits now pending against the old Attica mills corporation are settled. But Mr. Bock is the absolute owner of the mill. I notice also that flour dealers, who have for a long time stood out against the new proprietor, now handle this flour entirely, having full confidence in the new owner. Buffalo and Pillsbury flour, they say, are "knocked out."

Millstuffs have not advanced here as yet, although the market is very strong. Coarse winter bran is selling at \$22 per ton and spring at \$21.

Work on the new Ovens bakery building has been stopped for several weeks. Reason not given.

The West avenue mills, Attica, owned by Stedman, Vickeny & Co., report a very good trade.

It's a cure for weak eyes to see John R. Weld, of Medina, on 'change. It also makes old chaps like myself brush up and look as chipper as we can after getting in that rusty habit so common among the older class of dockmen of 40 or 50 years ago. Bright eyes, a neat appearance, with one of the most taking smiles imaginable and a manner most engaging—such as is rarely met with now-a-day—and you have a picture of Mr. Weld, one of the old school gentleman and business man of years long past. How it brings back memories of when David Dows supplied all the country millers with wheat and took his profits if there were any to take. J. A. Sawyer was the agent of this great Dows in Buffalo. I will say no more on that score, but of all the millers who paid into the hands of the Buffalo agent, the only one left to tell the tale, is my old friend John R. Weld. Failure wound-up all but John and how he survived is a mystery which only his pen can tell.

Mr. M. L. Crittenden, for many years one of our largest grain dealers and one who has been mainly instrumental in making the Board of Trade building as popular as it is, having managed its affairs since 1883, is about to leave Buffalo and reside with his sons in Milwaukee, who are in the grain business there. The new owners of the Board of Trade will miss his guiding hand and Buffalo will lose one of its most respected citizens.

The long doleful cry of dull times in the flour trade was suddenly checked by the advance in wheat last week. Not that the situation at present regarding this important cereal warranted high prices anymore than it did three months ago, but the crowd of speculators at Chicago concluded that the "country Jakes" would no longer take

hold and some other racket must be worked. So the damage to French crops is made the basis and up go prices. Later on when this has been milked sufficiently, the ground will be too dry or too wet, just as the gang want it to be, and the poor sucker will be either high up or down deep in the mud. Buffalo millers have little interest in Chicago, as the number who "short" in that market is growing smaller every year. But the boys have had a superabundance of flour on hand, the lord knows, and for the present advance, which has caused an unusually heavy draft on stocks, let us pray.

One of our largest millers remarked the other day: I was in that mood when a man thinks there will never be a demand for anything again. This advance put some life in the prospects; the smart buyers are asking for refusals on plenty of time, but I am tired of doing that sort of a banking business when the market is steadily going against me.

Duluth wheat is considered high by millers and not a few who bought around 96 last fall were selling out in preference to grinding, believing it would be cheaper to shut down between the time when they have no wheat on hand and the opening of navigation. This kept the market supplied for some little time, but the bottom of this bin has been reached and there is now not enough in store to last until the 15th of next month, if half the mills here should shut down. Rochester is crying for wheat and other small towns will also need a large amount to say nothing of New York. The only hope now is that Minneapolis wheat will come in liberally and of late the receipts have made quite a fair showing, still it is only a handful compared to what will be wanted before navigation opens.

A new addition to the Phelps & Sibley mill at Cuba will be commenced soon.

The elevator pool will be organized in a few days, all hands having practically agreed to accept the shares apportioned.

The amount of flour annually produced in what is known as Buffalo, which includes the falls and surrounding country mills, is given as 1,555,000 barrels. In 1889, 1,506,000 barrels were reported and in 1888, 1,380,000. Of course, these are Thurstone's figures and as near right as anything usually gathered here.

The Bennett elevator will change hands some of these bright mornings and without much fuss either. The Lackawanna is reported to be after this property and so are several other parties. Mr. Bennett said the other day: "These people want my elevator and I guess I will let them have it. I'm getting old, too old to bother with it. But they must pay me in just the way I want it. Three quarters down or good security at 6 per cent."

Hull's flour mill near Ithaca is to have new machinery and receive a general overhauling.

Mr. George Urban has discovered a new way to make the bell boys attend strictly to their duties. While in New York on a recent trip he could not get his bell answered. This made him tired. Jumping out of bed half a dozen times to touch up the bell and then not have it responded to, is not what we pay our board bill for. So George stuck a match in the side of the button. There was a wild rush to get

to his door and stop that infernal din. When the boy reached the room he found the Buffalo miller in bed. "Your bell is ringing, sir." "I am aware of it," coolly replied Urban. "Just step over and take that match out, please, and then bring me up something soothing."

The prospects for an early opening of navigation are better than even the most ancient mariner expected, the majority of the opinions placing the date at April 10th. In view of the blue outlook, vessel owners met to formulate some agreement whereby a long tiresome unprofitable season, due to an early opening and no freight to carry, could be prevented. The first meeting was well attended and the feeling was that May 1st would be settled on as the date to start out boats, but at a subsequent gathering only nine men were present. An organization was effected with Capt. Frank Perew as president. The agreement, if one is made, to hold boats until May 1st will never be lived up to. The thing has been tried for 40 years and not once has it been a success. The line boats will be the first to break the agreement as they did in 1886.

I see a Rochester miller has an idea that Buffalo could ship flour by canal instead of by rail. Years ago large shipments were made by canal, but since Pittsburg sent two boatloads in 1885 to New York, nothing worthy of mention has been done. With the present through rate obtained by the northwestern mills the rail is cheaper and safer than the canal.

Mr. Conway W. Ball, chief inspector of the Merchants Exchange, with his partner in the joys and sorrows of this world has just returned from a needed vacation. They took in New York, Washington and several smaller cities on the road. Mr. Ball refused to say whether he saw his old friend Grover Cleveland when in New York.

Mr. Horace H. Eldred, formerly manager of the Attica mills, is in Washington. There is no doubt about his ability to make money in some lines of business, but as a miller he was a flat failure. It was well known here that he had a thorough knowledge of the telephone business, and also that if he would push his claim against a certain company "there was millions in it". This may be his mission in Washington at present. Like Steve Sherman, Horace needs a balance wheel.

The "hay deal" of the great feed dealers of Buffalo, Messrs. Heinold & Rhodabough is turning out as everything else they undertake an immense success. If this firm does not realize a profit of \$7 per ton on their hay, I am no prophet.

Messrs. Spann & Chandler the largest barley dealers in this city have secured the services of Mr. C. F. Rockwell, as agent for their grain department.

Oregon white wheat was sold as low as 93 cents in this market when No. 1 white Michigan brought 104. The last sale of Oregon was at 104, yesterday and Michigan at 106½. A few traders in this market outside of the first owners have made quite a speck in handling this wheat and we are looking for a big trade in it next year.

Mr. A. J. Wright has gone to New York having won a point or two in his case. He is also reported to have remarked "we have treed that coon". Ma'by ma'by, but that special coon will keep the two hunters from their dinner a long time yet. Coon is a good fighter and proposes to win.

I want to close with a prediction on barley, viz: that this cereal will sell at \$1.00 per bushel for Milwaukee No. 2 before the malting season closes.

A new 225 horse-power Corliss engine is being built by the Tifts of Buffalo for the Attica mills and will be "set up" for operation in about six weeks. Miller Bork found it necessary in order to keep up with his orders to get more and better power than the mill now possesses. Although there are now 12 hands employed in the Attica mills besides the head miller and manager Gillespie, all unnecessary expenses have been lopped-off and probably for the first time in the history of these mills the business pays. The mill at present is running night and day. Mr. Bork manages to be in Attica five days in the week.

The most ridiculous quotations of the flour market in this city are published in one of the milling journals, which considers itself authority on everything connected with the trade. Think of \$6.25 for patent spring wholesale and adding 50 cents per bbl. for a retail price. These prices appeared for weeks before the last advance and there are millers here to-day who would like to furnish flour at the quotations given them. Yes and something less too.

The advance in rye flour astonished such old hands as Mr. Philip Houck. Last year the best grade was selling at \$2.75@4.00, to-day \$5.25 per bbl. is being obtained. J. B. A. Kern & Son, of Milwaukee have the best reputation among our rye flour buyers of all outside firms.

The Imperial Mill Company of Duluth will soon begin work on its 50,000 bbl. warehouse. The building will have a frontage of 500 feet and be situated so that it will have connection with all railroads. Docks and dredging are nearly finished. BUFFALO.

Buffalo, March 14, 1891.

OUR ST. LOUIS LETTER.

Missouri Legislative Matters—The N. Y. Fiscal Co's Evident Preparation for a Fight with the American Biscuit Co.—Inter-State Commerce Commission Against St. Louis and Kansas Millers Favoring Texas Millers—The 3 B's—Death of John Kalbfleisch.

THE Missouri legislature continues to flounder on in its legislative course and the farmer and granger element continues to make itself conspicuous by its attempt at legislating. Its last endeavor was to introduce a bill making the freight rates on wheat lower and those on flour higher than they are at present. The granger element fails to see that in this as in several other bills which have been introduced the effect will be anything but profitable to themselves and instead of benefiting they but injure themselves and their customers, the millers.

Another action of theirs is that of trying to separate the state grain inspector from the railroad and warehouse commission. This resulted from an inspection of the state grain inspection department when it was found out what salaries (\$50,000) these inspectors were getting. This separation would be well enough did it not make the position of chief grain inspector an elective one, which means that no matter how he may act, the chief inspector, after election is good for four years four years of favoritism. Another part of the bill provides that all wheat must pass through the hands of and be registered by the state. That this good, in so far as it makes inspection more in accordance with the grade of wheat is approved by all, but that it should be weighed and receipt given for the amount with no respect to loss of weight by shrinkage, is undoubtedly wrong as far as the elevators are concerned who would be obliged to stand all

the loss of shrinkage while the wheat was lying in the elevators.

Hon. F. M. B. A. Fogle's bill, otherwise known as a "short treatise on milling," has been killed.

With the passage of the Union depot bill the value of the Camp Spring and the Anchor mills sites rose about 200 per cent. The Camp Spring mills are situated right where the new Union depot will be built while the Anchor mills, or rather the ruins of the mills, are situated in the immediate neighborhood. These two concerns are to be congratulated on their good fortune in having so advantageous a position.

Speaking of real estate it is rumored that the New York Biscuit Co. has bought up a large piece of property for the purpose of building an immense factory. It is said that over \$300,000 has been expended in land alone. This action is the result of its fight with the American Biscuit Co., of which concern the St. Louis bakers are all members. It is thus proposed to fight that trust on its own grounds. This will be of much advantage to St. Louis millers, adding greatly to the local demand.

The Inter-state Commerce Commission has handed down its decision on the differential freight question and decides against St. Louis. Our readers may remember that some time ago the Kauffman Milling Co. made complaint before the commission that the rates on flour and wheat from Missouri and Kansas to Texas were hardly just—that while wheat was shipped at 46 cents per 100 pounds flour was carried at 51 cents per 100 pounds, a difference of 5 cents, and that this enabled the Texas millers to buy our wheat at this low rate, and hence destroy our southern trade by underselling our prices. Under these circumstances it demanded that the differential of 5 cents be lowered so that we might not lose through the unjust railroad discrimination. The commission holds that the discrimination is not unjust in view of the circumstances surrounding the case; that a greater discrimination, such as the railroads at harvest time sometime make, is unlawful. This is a defeat which St. Louis had not expected and is of much importance to all Missouri and Kansas millers who were backing the Kauffman people in their fight and were confident of a successful ending.

Some time ago David B. Kirk & Co., of Kansas City, offered a prize of three barrels of flour for the most appropriate name for their new flour. They claim it to be a "combination of six of the leading top patents from hard wheat selected for strength and color, skillfully blended by machinery constructed for the purpose." They believe this to be an innovation in the milling line. In reply to their announcement of a prize over 2,000 answers were received. The name chosen was the "Three B's" or Bakers' Best Blend.

Death has again visited the Kalbfleisch family and another well known miller of St. Louis departed this life. John Kalbfleisch, father of the late Henry Kalbfleisch, of the St. George mills, and grandfather of the late August Kalbfleisch, vice-president of the Kalbfleisch Milling Co., died in his eighty-eighth year on March 9, 1891. He was at one time head of the St. George mills and has long been recognized in the milling trade, though of late the business has been carried on by his children. His death is a source of sorrow not only to his family but to all the milling fraternity of which he has long been a member.

WHEAT.

Receipts this week amount to 286,683 bush. as against 247,948 bush. of last week. Shipments are 120,661 bush. as against last week's 140,637 bush. There is also an increase in stock in elevators, the reports showing 1,295,838 bush. for this week and 1,275,937 bush. for last. Local consumption from elevators amounted to 39,552 bush., while 93,338

bush. were drawn for rail shipment. The local milling demand for No. 2 Red was good at a fair quotation. No. 2 Red is at present selling at \$1.00@1.00½, No. 3 Red at \$1.00½ and No. 4 at 68c.

FLOUR.

The flour market was very quiet this week and very little was done, prices were stiff and buyers few. Receipts for the week amounted to 30,864 barrels as against 24,768 barrels of last week. Last week's shipments were 70,634 barrels, this week's, 71,372 barrels. The output fell off 1,700 barrels adding up only 62,300 barrels, divided as follows:

NAME.	Last Week. Barrels.	This Week. Barrels.	Monthly. Barrels.
Alton City....	4,000	4,000	16,200
Camp Spring..	4,100	3,700	14,000
Carondelet....	800	750	3,550
Crown.....	3,000	3,200	12,000
Eagle Steam...	5,500	5,500	22,000
Hazel.....	2,600	3,500	11,350
Jefferson.....	3,500	3,200	12,900
Kehlror.....	8,000	7,200	21,200
Meramec.....	1,200	1,300	5,200
Plant.....	6,000	6,000	23,100
Planet.....	4,500	6,000	22,500
President.....	3,000	3,000	12,000
Regina.....	3,800	650	14,750
St. George.....
Saxony.....	3,000	3,100	11,100
United States..	2,200	2,200	8,750
Victoria.....	5,000	5,100	20,200
Yaeger.....	3,800	3,900	14,800
Total.....	64,000	62,300	248,800

Present quotations on flour are XXX, \$3.00 @3.10; family, \$3.25@3.40; choice, \$3.60@3.75; fancy, \$4.10@4.20; extra fancy, \$4.45@4.55; patents, \$4.75@4.95.

NOTES.

Henry Yaeger sailed for home from Liverpool the other day. He comes on the *Britanic* and is due in a day or two.

Wm. H. Scudder, an ex-president of the exchange, died in the past month.

Henry Stanley, of Todds & Stanley, returned this week from a trip through Georgia. **WALTER HOWARD BAIN.**

St. Louis, March 16, 1891.

MILWAUKEE ITEMS.

PETER EKERN, of Pidgeon Falls, Wis., is erecting an Allis roller-process flour mill.

A. D. GODSHALL & BRO., of Launsdale, Penn., are remodeling their 150-barrel mill to the Allis system.

THE Texas Star Flour Mills, of Galveston, Texas, are putting in a 400-barrel roller process cornmeal outfit on The Edward P. Allis Company's system.

THE Edward P. Allis Company, of Milwaukee, Wis., are furnishing a 50-barrel roller mill to Señor Gonzalez Bocas, of Cuchillo Uegro, Paraguay, South America.

L. S. MOORE, of Hillsboro, Va., has placed his contract with The Edward P. Allis Company, of Milwaukee, Wis., for a 30-barrel roller process water-power flouring mill.

WORTHY & DUNCAN, of Woonsocket, S. Dak., are remodeling their 100-barrel roller mill with rolls and machinery furnished by The Edward P. Allis Company, of Milwaukee, Wis.

PETRIE & SCHEUR, of Mishicott, Wis., are building a 100-barrel roller flour mill to replace the one destroyed by fire and have placed their order with The Edward P. Allis Company, of Milwaukee, Wis.

SCHLAFFER, HUEBNER & CO., of Menominee Falls, Wis., contracted last week with agent Baxter, of The Edward P. Allis Company, of Milwaukee, Wis., for a 100-barrel roller mill driven by a Reynolds Corliss engine.

We are pleased to note that the Prinz & Rau Mfg. Co., Milwaukee, Wis., are doing a fine business in cockle machines and grain-cleaning machinery among both millers and brewers. If their trade continues to increase, they will soon be obliged to again enlarge their plant.

NEWS.—The losses by fire at Armourdale, Mo., on Feb. 24 were: On the elevator of the Campbell Co., \$30,000; insurance, \$28,000. The loss on contents of the elevator is estimated at \$44,500, on which there was insurance as follows: On 20,000 bushels of wheat, \$17,000; on 14,000 bushels of oats, \$6,000; on 3,000 bushels of corn, \$2,000. The

contents of the seventeen loaded cars, destroyed at the time, consisted of 12 car loads of flour, 5,000 bushels of wheat, oats valued at \$600, corn meal valued at \$1,200 and \$2,500 worth of corn. The 5,000 bushels of wheat was insured for \$4,000 and the flour for \$7,000. The company also carried insurance on the corn meal and oats. Kelly Bros., the coopers, whose loss on their plant was about \$35,000, were insured for about \$10,000.

At Tecumseh, Mich., March 4, Heck Bros. flour mill was burned. Loss, \$34,000; insurance, \$21,000.

At Butler, Mo., Feb. 18, J. T. Shannon & Co's flouring mill was burned. Loss, \$35,000; insurance, \$12,000.

CHICAGO capitalists are said to be interested in a big company incorporated at Baltimore to establish a line of steamers to Brazil.

At Cincinnati, O., March 15. Fire damaged the Sam Weidler & Co. flour and feed mill on Carr Street to the extent of \$25,000. Insured.

At Goshen, Md., March 10, the roller mill of R. D. Riggs, and his saw mill were burned. The fire was the work of an incendiary. Loss \$6,000; insurance light.

At Halstead, Kan., Feb. 14, the flouring mills of Hoover & Dunham, and contents, including two cars of flour, were burned. Loss, \$25,000; insurance, \$9,000.

AN exchange says that a man named Corn was married to a lady named Wheat, in a church at Creston, Iowa, and the choir stunned the audience present upon the occasion by singing "What Shall the Harvest be?"

NEAR Dodge, Wis., March 8, the grist mill and feed mill were burned, together with a large supply of grain that was in stock for feed grinding. The mill was owned by parties in Milwaukee, who took it under a mortgage. Loss, \$7,500.

FIRE at Kansas City, Mo., on the night of Feb. 24 destroyed the cooperage establishment of K. R. Kelly & Bro.; the Armourdale elevator, owned by J. P. Campbell & Co.; forty freight cars and about 100,000 bushels of grain, entailing a loss of about \$150,000.

HOOVER HUGHES CO., Phillipsburg, Pa.; F. N. Ellis & Co., Glandorf, Ohio; Jno. A. Cole, Rochester, Minn.; Shawano Shoe Co., Shawano, Wis.; Barlow & Lawrence, Thornton, Ohio; Spiceland Glass Co., Spiceland, Ind.; have placed their orders with Menasha Wood-split Pulley Co., of Menasha, Wis., for Hickory Pulleys.

At Chicago, Ill., Feb. 25, the Counselman grain elevator at 35th street and the Santa Fe R. R. tracks was almost totally destroyed by fire, involving a loss of \$100,000. The building was a five-story structure and had a capacity of 200,000 bushels. At the time of the fire 50,000 bushels of wheat was stored in the building and was destroyed. Counselman & Co., Board of Trade operators and the original owners of the elevator, sold out some time ago to other parties.

STEELTON FLOURING MILL.—Negotiations were perfected Feb. 16 for the lease of the Steelton Flouring Mill at Steelton, Pa., by the veteran manager and miller of the Paxton and Lochiel mills, Mr. John Hoffer, and others. An application for a charter will be made March 5, for the Paxton and Steelton Flouring Mills Company for the manufacture and sale of the products of cereals of all kinds, by Henry McCormick, James McCormick, John Hoffer, James Newby and J. W. Barker.

EVERETT AUGHENBAUGH & CO., of Waseca, Minn., have begun work on a new mill, to be constructed on the site of the one burned several weeks ago. J. W. Aughenbaugh has purchased W. G. Ward's interest in the site. The new mill will be of 500 barrels daily capacity, five stories high, built of Chaska brick. The engine will be a Corliss of 150 horse power, and the mill machinery will be full roller. A four-story elevator will be built in connection. The mill will cost about \$50,000 and be completed within 90 days.

The *Northwest Farmer*, of Winnipeg, is responsible for the following: "A member of the Winnipeg Grain Exchange shipped a car of wheat to a mill in Ontario recently. As soon as it got there the miller telegraphed: 'Wheat very badly out of condition.' The Winnipeg dealer wired back: 'Examine car carefully and send full report of condition.' To this the Ontario miller sent the following: 'Give orders to station agent to open car.' And again the Winnipeg dealer telegraphed: 'How did you know it was out of condition?' Comment is unnecessary.

THE Stoughton Milling Co., of Stoughton, Wis., refused to accept an offer of \$25,000 damages by the Dane County Drainage Commission, holding out for the sum they first demanded—\$190,000, a sum sufficient to afford an income which would pay the additional expense of steam over water-power. It is understood that the commission will award

damages at about \$15,000 and then take immediate possession of the water-power as they are authorized to do under the law. The milling company can then appeal to the Circuit Court and have the damages appraised by a jury, but the work of the commission will not be delayed to await the decision of the court and the work of removing the dam may begin immediately. The commission will take possession in a short time; when it does, it will be compelled to pay the amount awarded by the court. The case may go to the Supreme Court before its final settlement, as the mill-owners seem determined to stick for heavy damages.

H. C. PAGE was president of the Page Mill Company and the Fergus Falls National bank at Fergus Falls, Minn., and when the mill company became insolvent the bank began an action and got a judgment for \$45,000 before the other creditors knew of the insolvency of the mill company. The bank then attached all the assets of the mill company, leaving nothing to pay the other creditors.

Maurin Bros., of Elizabeth, who were caught for \$5,000, and the National German-American bank, of St. Paul, which was caught for \$10,000, began suit to set aside the judgment on the ground that there was collusion between the bank and mill company.

When the first hearing of the case was had, no evidence could be secured, and it was considered that the bank would hold its judgment. When the case came up for argument the attorneys for Maurin Bros. put in an affidavit claiming that new and direct testimony had been discovered to prove collusion, and the judges decided to grant a rehearing of the case. It will come up at the April term.

HARDWOOD SEWING MACHINE SHEAVE.

The accompanying illustration shows a recent improvement in Sewing Machine Pulleys, made by the Menasha Wood-Split Pulley Co., at Menasha, Wis. It is a split pulley, made to put on the shaft without disturbing the shaft or cutting keyseats in it. It is a small wooden sheave. Its special advantages are, that it can be put on the shaft at any place, in a few moments.



They are made any size desired, so the speed of any machine may be changed in a few moments; and being made of wood, the ropes will run the machine in good shape, even if it is slack or loose. Their cost is much less than iron sheaves, and they can be had by next express after order is placed, as a large stock is always on hand. They are used on drive shaft for sewing machines.

OUR LEGAL DEPARTMENT.

Specially prepared for The United States Miller and Milling Engineer, from the latest decisions.

SALE OF WHEAT FOR FUTURE PAYMENT.—Where wheat is delivered by the owner to a mill or elevator upon the agreement that it is to be paid for at whatever is the market price in twenty days from the day of delivery, the transaction amounts to a sale, and passes the title, and if between the date of delivery and the date of payment the wheat is destroyed by fire, the seller is nevertheless entitled to recover the price agreed upon.—*Woodward v. Boone*, Supreme Court of Indiana, 25 N. E. Rep. 812.

RESPONSIBILITY OF EMPLOYER FOR SAFE APPLIANCES.—It is the imperative duty of an employer to provide a reasonably safe place for his employees to work in, and reasonably safe appliances for them to do their work with, and the responsibility for this cannot be so delegated to an agent or contractor as to relieve the master from liability for neglecting either of these duties. While it is true that a servant accepts the risk of dangers which are plainly apparent, or of

which he knows, he cannot be held to accept dangers arising from defective appliances of which he has no notice, and which would not come to his knowledge in the ordinary course of his employment.—*Philadelphia & R. Ry. Co. v. Trainor*, Supreme Court of Pennsylvania, 20 At. Rep. 632.

RECOVERY OF EMBEZZLEMENT.—While the presumption of innocence which must be removed by proof obtains in civil actions to recover money embezzled, yet if it be shown that an employee receives money belonging to his employer which it is claimed has not been paid over, and of which he has made no account, it is then incumbent on him to show that the money was actually received by his employers.—*Shaak v. Lyon*, Common Pleas of New York, 11 N. Y. Supp. 720.

EXPERT WORK AS "LABOR CLAIM."—Under a statute making claims for labor against an insolvent preferred claims, the amount due an expert machinist, whose duty it was to adjust and start machinery supplied by his employer, and to operate it until it was demonstrated that it fulfilled the contract for its purchase, and to discover and report any defects, although in its nature expert work involving the exercise of skill, education and judgment, was nevertheless accompanied by much manual labor and clearly within the provisions of the statute.—*In re Black*, Supreme Court of Michigan, 47 N. W. Rep. 342.

GRANT OF GRIST-MILL PROPERTY.—Defendants contracted to convey "all that certain grist-mill and water-power known as the C. B. Knight Grist-mill Property, including a tract of land at Round Pond, together with all the rights and privileges to the waters in Round Pond that the late C. B. Knight possessed in his lifetime, or belonging to said property." C. B. Knight obtained the property by devise from his father, describing the land by metes and bounds, which included a strip adjacent to the pond, and near the lower part, and a mortgage on the property which was excepted from the covenants of the contract described the property in the same manner, and the strip was included in a map of the property given by the defendant to the agent who made the sale, though the map was not shown to plaintiff. On the other hand, several witnesses testified that the mill property only included the land devised by C. B. Knight, and which was rented and used with the pond, but which there was nothing to show that the purchaser had knowledge of such change. Under these circumstances the strip described should be included in the deed.—*Nostrand v. Knight*, Court of Appeals of New York, 25 N. E. Rep. 948.

GUARANTY OF NOTE—APPLICATION OF DEPOSITS.—One who is not a party to a note, who has guaranteed it without protest, is liable for the amount, although no proceedings have been taken to collect it from an endorser who is perfectly solvent, and liable on the note as a guarantor as well as endorser, his liability as endorser having terminated by failure to protest, and his liability as guarantor being subsequent to the other party. A bank is not bound to apply to a note deposits made by the maker, after the maturity of the note, or a balance on deposit at that time, which taken together do not equal the amount of the note.—*First National Bank of Lancaster v. Shreiner*, Supreme Court of Pennsylvania, 20 At. Rep. 718.

PATENTABILITY OF MECHANICAL SKILL.—The first claim of letters patent No.

288,525, granted June 8, 1880, to William D. Gray for the improvements in roller grinding-mills, namely, "(1) In a roller grinding mill, the combination of the countershaft, provided with pulleys at both ends, and having said ends mounted in vertically and independently adjustable bearings, the rolls, C, R, having pulleys connected by belts with one end of the countershaft, and the rolls, D, F, independently connected by belts with the other end of the counter-shaft, as shown," does not disclose any patentable subject-matter. The application of belting to drive roller grinding-mills did not originate with Gray, and his peculiar arrangement resulted at most in an improvement in degree merely, and said combination evinced only the exercise of ordinary mechanical or engineering skill. In view of the terms of the specification and the prior state of the art, said claim could not be so construed as to cover a roller-mill manufactured in accordance with letters patent, No. 334,460, granted January 19, 1886, to John T. Obenchain. By the Austrian patent law, the fixed longest duration of a patent for an invention is 15 years, and every patentee whose privilege has been granted for a shorter period than the longest may claim its prolongation for one or more years within the fixed longest period, provided such prolongation be demanded before the privilege had become extinct. In the original grant of an Austrian patent, the allowance of the franchise was for one year, but on request it was four times extended, from year to year, and at the end of the fifth year the franchise was suffered to expire. A United States patent to the same patentee, and for the same invention, was issued after the Austrian patent was granted and during the first year it was in force. By the original grant of the Austrian patent the patentee was invested with the right at his mere option, to have the patent prolonged for the full term of 15 years, and, under section 4887 of the Revised Statutes, the United States patent ran for that term, notwithstanding the expiration of the Austrian patent at the end of the fifth year. Under the Austrian patent law, the ministry of commerce, in deciding the length of the term which appertains to every Austrian patent, exercises a judicial function, and its opinion on that subject will be followed here, agreeably to the established rule that the Courts of the United States adopt the construction of a statute of a foreign country made by the courts of that country.—Consolidated Roller-mill Co. v. Walker, Circuit Court of the United States, Eastern District of Pennsylvania, 43 Fed. Rep. 575.

TRADE NOTES.

THE Milwaukee Bag Co. is supplying the wants of a great number of millers, and warehousemen in all parts of the northwest. Their goods and prices give universal satisfaction.

THE Vortex Dust Collector Co., of Milwaukee, although they have quite recently increased their facilities, have been obliged to run nights part of the time the past month to keep up with orders.

"THE Wadhams Oil & Grease Co., of Milwaukee, Wis., and Seattle, Wash., are giving away to any one making application, samples of their "World's Fair Metal Pomade" free of charge. Send in your applications early before these samples are all gone."

THE Cockle Separator Mfg. Co., of Milwaukee, Wis., have recently fur-

nished Morgan Scourers to J. B. A. Kern & Son, Milwaukee, and Willford & Northway Mfg. Co., Minneapolis, Minn. They have also shipped Kurth Cockle Separators to H. R. Heath, Ft. Dodge, Ia. (two cylinder machines); B. F. & D. D. Hix, Flat Creek, Tenn., and N. H. Nepud & Co., Coon Valley, Wis. They are furnishing a large number of steel cylinders, and also report a considerable trade on perforated and indented metal.

THE Superlative Purifier Mfg. Co., of Milwaukee, Wis., have recent orders for New Era Scalpers from Worley, Reifsnider Co., Ellettsville, Ind.; Niles Milling Co., Niles, Mich. (4 machines); Wm. Partlo, Ingersoll, Ontario (double machine); Wm. A. Coombs, Coldwater, Mich. (3 machines); Charles City Water Power Co., Charles City, Ia. (3 machines to go in Cosgrove mill); Goshen Milling Co., Goshen, Ind.; W. B. Carithers & Son, Moscow, Idaho; Chas. S. Henning, Cherokee, Kas.; Jacob Geib, Louisville, O.; McKim & Hamilton, Pittsburg, Kas., and Nordyke & Marmon Co., Indianapolis, Ind.

THE Nebraska City Cereal Mills, of Nebraska City, Neb., finding the demand for their goods far beyond their present capacity, decided to erect new and more extensive mills, etc., and after a careful investigation of the different systems and machines for the manufacture of cereal products, have awarded their entire contract to The J. B. Alfree Mfg. Co., of Indianapolis, Ind. These new mills will have a capacity of 4000 bushels per day and will manufacture Pearl Hominy, Grits, Pearl Meal, Cream Meal, Export Meal, Brewers' Corn Malt, Corn Flour, Buckwheat Grits, Rye Flour, Farina, Rolled Wheat, and other rolled cereals and feed.

These new mills in connection with their present oatmeal and cereal mills, and the 100,000 bushels elevators, extensive warehouses, cooper shops, and feed mills, now in process of erection, will be the largest and most complete cereal mills in the country. This great establishment has grown up from a comparatively small mill a few years ago, under the efficient management of Mr. Theodore Beyschlag, a young man of rare executive ability and sterling business qualities. The firm is composed of Frederick Beyschlag, Sr., Theodore Beyschlag and Joy Horton, and has a world-wide reputation as manufacturers of high-class cereal products.

SHAFTING.

Paragraphs about Shafting.

DON'T buy light hangers and think they will do well enough, when your own judgment tells you that they will spring.

Remember that shafting is turned one-sixteenth of an inch smaller than the normal size.

Cold rolled and hot rolled shafting can be obtained the full size.

The sizes of shafting vary by quarter inches up to three and a half inches.

The ordinary run of shafting is not manufactured longer than from eighteen to twenty feet.

For line shafts never use any that is smaller than one and eleven-sixteenths inch in diameter, as the smallest diameters are not strong enough to withstand the strain of the belts without springing.

The economical speed of shafting for machine shops has been found to be from one hundred and twenty-five to one hundred and fifty revolutions per minute, and for woodworking shops

from two hundred to three hundred revolutions.

A jack-shaft is a shaft that is used to reive the entire power direct from the engine or other motor, which it delivers to the various main shafts.

Keep the shaftings well lined up at all times, and this will ward off a breakdown and avoid a waste of power.

Know that the pulleys are well balanced before they are put in position, as a pulley much out of balance is quite a sure method to throw shafting out of line.

Look to the pulleys, and see that they have been bored to the size of the shaft, for unless this is done the pulley may be out of center on the shaft and prevent smooth running.

If possible, apply the power to a line of shafting at or near the center of its length, as this will enable you to use the lightest possible weight of shafting.

Hangers with adjustable boxes will be found to be the most convenient for keeping the shafting in line.

Keep your drip-cups cleaned, and do not allow them to overflow or get loose.

Have a supply of tallow in the boxes; in case of accidental heating it will melt and prevent cutting; this rule, while good for general use, applies particularly to special cases where there is a supposed liability to heating.

Never lay tools or other things on belts that are standing still, for they may forgotten and cause a break-down when the machinery is started.

Don't attempt to run a shaft in a box that is too large or too small, as you will waste time and fail to secure good results.

A loose collar held by a set-screw will cause the collar to stand askew, and it will cut and wear the box against which it runs.

In erecting a line of shafting the longest sections should be placed at the point where the power is applied. The diameter can then be gradually decreased towards the extremities remote from this point.

Don't put loose bolts in plate couplings, as this will give no end of trouble in shearing and the wearing away of the bolt holes.

Don't think that because your shafting has been well erected, and you oil it regularly, that it will never need any inspection or repairs.

Don't try to economize in first cost by having long distances between hangers, for a well supported shaft will always do the best work; short shafts are the surest to be straight and to remain so.

The length usually adapted to shafting bearings is twice to four times the diameter of the shaft, varying with the diameters of shaft, kind of bearings and the material used in them. Large shafts in the gun metal or bronze boxes may have bearings only twice their diameter in length. Cast-iron bearing up to, and including three-inch shafts are often made four diameters of the shaft in length, particularly for self-adjusting hangers.

If babbitt is used for the boxes use only a good material; do not adopt the common mixture of tin, antimony and lead.

Insist upon having good iron in your shafting, as the bearings will take a finer polish and you will not be subject to sudden ruptures.

If the strain on a pulley is so great that the set-screws already in will not hold it, do not let them score in the shaft, but put it in an extra screw, or cut a key-way and put in a key.

The width of a key-way should be

one-quarter of an inch for each inch of diameter of the shaft.

The depth of the key-way is one-half its width.—*Western Machinist.*

MATZOS, OR THE UNLEAVENED BREAD OF THE HEBREWS.

THE Times-Star of Cincinnati, says the making of this article has become a considerable industry in this country. For three months before the Feast of Passover the matzos bakers are busy, and nearly 8,000,000 matzos are baked in this city from the middle of January to the middle of April. This represents about \$445,000.

Said the head baker at Moses Bing, Jr.'s, bakery: "We make about 8,000 matzos a day, for which we use four barrels of flour."

"Do you use the ordinary flour?"

"Yes, but it is the finest quality, and has to be examined by a Hebrew, who judges whether it is satisfactory. We buy ours in this city. Then the water used must be put into a vessel before sundown and remain to settle for the whole night. This bakery is for baking unleavened bread only, and everything is especially got for this bakery, even to the rags we use."

"How do you prepare the flour?"

"We take, say, fifteen pounds of flour, and mixing it with water, we put it into a copper kettle, where it is thoroughly mixed. Then this man, the kneader, takes it, and on this block by means of pressing on this heavy beam, he kneads the dough to the proper cohesiveness." The reporter saw a block, on top of which was a beam four feet long, fastened by a spring at the back of the block; and there was a man jumping on and off the beam so as to make a sort of artificial kneader, the beam rising when the man jumped off.

"It is then taken to the next room," said the baker, "and about a third of it at a time is passed seven times through these rollers, which you see are arranged like a clothes-wringer's rollers, only these are iron. Having been so pressed, it is of the proper thickness. Care has to be taken here that while one piece of dough is being pressed the other pieces should not become too hard; therefore a man is continually beating them. The piece of dough, now a strip ten inches wide by ten feet long, is put under the hands of a man who uses the rollers much like the ordinary dough roller, except that there are sharp projections sticking out all around to make little holes in the cakes. Next to him is a man with a sharpened wheel which he uses to cut the strip into pieces, each the length of a cake. These pieces are put into an oven, and in two minutes they are done."

And the gentleman handed the reporter a matzo, which was almost tasteless except for the slight browning it had received.

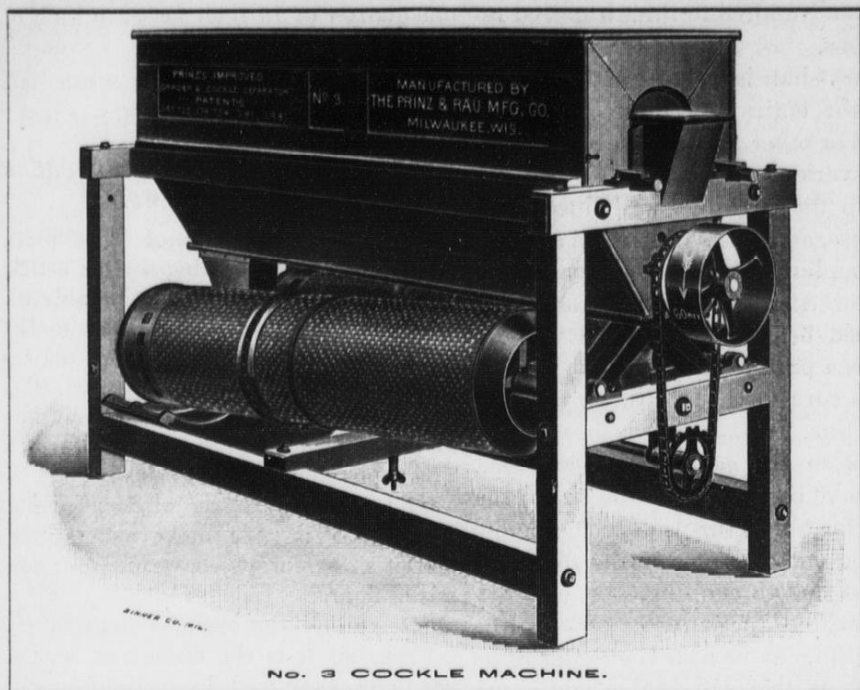
"Are these cakes made the same way in Europe?"

"No; abroad there is more hard work. Women knead the dough by hand, and the cakes are thicker than we make them here."

"Matzos cost about 10 cents a pound, and the meal which we make by grinding broken matzos costs 11 cents a pound. We make 100 pounds of meal a day."

SUSQUEHANNA WATER POWER & PAPER Co., Conowingo, Md.; Rose Valley Mills, Media, Pa.; Henry Hadley, Gardner, Mass.; Winnebago Paper Mill, Neenah, Wis.; Lockport Pulp Co., Lockport, N. Y.; have placed their order with the Menasha Wood-Split Pulley Co., of Menasha, Wis., for hickory pulleys and hangers, cone pulleys, friction clutch pulleys and pickers.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND GRAIN ELEVATOR DIRECTORY FOR 1890-91.



THE "PRINZ" PATENT IMPROVED COCKLE MACHINES

Immense increase of trade without traveling agents. OUR COMPETITORS GROSSLY ADVERTISING and imitating our STEEL REELS, we have decided to reduce our prices still more.

Among the BIG MILLS using our machines are in MINNEAPOLIS: The Holly Mill; the Zenith Mill and the Pettit Mill.

MILWAUKEE: The Phoenix Mill; the Jupiter Mill; the Gem Mill; the Daisy Mill and the Duluth Mill.

TO BE SURE OF GETTING THE BEST MACHINE BUY THE GENUINE

"PRINZ" IMPROVED STEEL COCKLE REEL.

WRITE FOR CIRCULAR AND REVISED PRICE LIST TO

THE PRINZ & RAU MFG. CO., MILWAUKEE, WIS.

An Important Communication.

MILWAUKEE, February 28, 1891.

TO THE TRADE:

The Duluth Imperial Mill Company, of Duluth, wrote to us some time ago requesting us to discontinue the use of the word "Imperial" as a Brand of Flour. It is hardly necessary to say that we declined to comply with this modest request, but we did tell the gentlemen that if the Brand was of any special value to them we would sell it to them.

After they had notified us that they had our offer under consideration and before they had declined it, they commenced a suit in the United States Court here against us for alleged infringement of their Trade Mark. Since the commencement of the suit, we have ascertained that the attorneys for the Duluth Imperial Mill have been writing to our customers whenever they could find them, threatening them with prosecution if they sold our Flour of the Imperial Brand. It is perfectly clear to us that both the suit and the threats made to our customers are no more than impudent attempts to bluff us and to build up a trade for the complainant upon the reputation of our flour, and in proof of our assertion, that there is no merit whatever in their claim, we desire to submit the following facts:

First. The Duluth Imperial Mill Company only claims to have used the Brand in question since September, 1889. We have used it continuously for over four years, having commenced its use about two years before the mill of the complainant was built.

Second. Complainant has no possible legal claim upon the Brand and does not even pretend to have copyrighted it, or attempted to copyright it. The bill contains the customary interrogatories which the complainant asks, that we be required to answer under oath as to how much flour branded "Imperial" we have sold since September, 1889, and to whom we have sold it. The only possible object we can see in requiring us to answer questions of this character is, to afford the complainant knowledge to which it is not entitled, as to the extent and nature of our business to post them as to who our customers are and where they live, and to enable them to write threatening letters to those customers and endeavor to secure them for their own.

We have retained counsel who have entered appearance for us in the suit, and we assure all our customers that they need have no fear whatever of the idle and empty threats of the complainant.

Our flour branded "Imperial" has attained a reputation so enviable that it is evident that customers could not be induced to forsake it for other Flour, except by threats of prosecution; but we shall protect all our customers fully in the premises, and we intend to bring suit against the complainant at an early date for damages done our business.

FAIST, KRAUS & CO.,

PROPRIETORS OF DULUTH ROLLER MILLS,
MILWAUKEE, WIS.

FOR SALE.

A roller-process flouring mill; 80 miles west of Baltimore; never-failing water power; capacity 300 bbls. a day; railroad at door, with shops, store-houses and dwellings. Address,

R. D. MUSSEY, Lawyer,
WASHINGTON CITY, D. C.

ENGINE AND BOILER FOR SALE.

A 25 horse-power Reynolds Corliss engine, with 40 horse-power boiler and heater and connections, all in first class condition and in use at present. To be delivered in May, 1891. A bargain for anyone in need of same. Reason for selling, more power required. For further information address,

RIVERSIDE PRINTING & ENG. CO.,
124 Grand Avenue, MILWAUKEE, WIS.

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JOSEPHINE ROGERS A HEROINE AT GETTYSBURG.

GEN. HENRY W. SLOCUM, in an article in the February number of the *North American Review*, gives the following reminiscence of the late war:

"We called at the house which has always been an object of interest to all who visit this field. Near the line occupied by the brigade under command of General J. B. Carr, of Troy, N. Y., stands a little one-story house, which at the time of the battle was occupied by a Mrs. Rogers and her daughter. On the morning of July 2 General Carr stopped at the house and found the daughter, a girl about 18 years of age, alone, busily engaged in baking bread. He informed her that a great battle was inevitable, and advised her to seek a place of safety at once. She said she had a batch of bread baking in the oven, and she would remain until it was baked and then leave. When her bread was baked, it was given to our soldiers and devoured so eagerly that she concluded to remain and bake another batch. And so she continued until the end of the battle, baking and giving her bread to all who came. The great artillery duel, which shook the earth for miles around, did not drive her from her oven. Pickett's men, who charged past her house, found her quietly baking her bread and distributing it to the hungry. When the battle was over her house was found to be riddled with shot and shell, and seventeen dead bodies were taken from the house and cellar—the bodies of wounded men who had crawled to the little dwelling for shelter. Twenty years after the close of the war General Carr's men and others held a grand reunion at Gettysburg, and learning that Josephine Rogers was still living, but had married and taken up her residence in Ohio, they sent for her, paid her passage from her home to Gettysburg and back, and had her go to her old home and tell them the

story which they all knew so well. They decorated her with a score of army badges, and sent her back a happy woman. Why should not the poet immortalize Josephine Rogers as he did Barbara Frietchie?"

[Compiled for the UNITED STATES MILLER.]

MILLING AND MECHANICAL NOTES.

In firing to keep steady steam, and up to the proper pressure, I watch the steam gauge, and when the pointer ceases to move, I know the fire is about spent; then I put in more fuel, and by the time the fire is burning bright the steam has fallen but little. I always avoid having any bare spots on the grate, as cold air going through these will hinder steam making.

No mechanic, however high in his profession, will have all the knowledge there is on the subject; and while it is the learner's duty to obey and help execute the designs of his superior, he should always have the mental reservation that he will accept nothing as final on the mere statement of an authority, but will seek for the reason or proof for everything mechanical when the proper opportunity arrives.

As between a "plain side valve" and an "automatic cut-off," there is now seldom any question for most situations. Under 40-horse power there may be cases where it will pay to get a plain slide; very few above that, where it is not best to buy an automatic cut-off. There is to be considered not only the fuel but the matter of regulation; and even if fuel costs nothing, the engine which consumes the most steam requires the largest boiler, and boilers are not free in any part of the country that I have got into yet.—Robert Grimshaw.

AN ESSAY ON REELS.

BOLTERS or reels are among the oldest and best known appliances in a flour mill. At various periods modifications of construction and varieties of dressing material have been adopted to enhance capacity, improve the work and to diminish the power required; yet withal there is retained some resemblance to machines of earlier construction, not unfamiliar to the miller, and no special skill has been called for in operating them. As a means of separation large dependance is placed on dressing reels, since by the adoption of a suitable clothing a somewhat decisive line is drawn between what is fit to go and what is thrown off; indeed some aver that all the needful separations of milling can be accomplished if only a sufficient dressing surface be provided. Few would be content with such a result at the present day, but notwithstanding this a long life may be predicted for reels; when rightly applied, they accomplish with ease and certainty much good, whilst in the majority of cases they arrest and conceal that which is imperfect and prevent its leaving the mill.

The amount of work to be obtained from a reel or bolter, according to the space occupied and power entailed, has fluctuated greatly. The modern centrifugal reel in this respect has a considerable advantage over the hexagon reel previously used, which occupied more than twice its space. This latter was slow in operation, a small portion of its dressing surface only being in action; also liable to obstruction of the mesh and other irregularities. In addition to its inconvenient size, in its old form it was altogether ill adapted for the manifold separations of modern milling. We shall have to advert to its various applications again. But with regard to the centrifugal, a more energetic distribution of the material was effected over more of the dressing surface, which in consequence was better utilized, more and better work being done in much less space than with the long silk reel of less perfect design. The old inclined wire machine with internal brushes had some features in common with the centrifugal, but the brushes seem to have been employed to force the flour through the meshes of the cylinder in the least possible time and space, it being no uncommon thing to dress 20 sacks of flour per hour with a 20-in. reel. Though coarser mesh was then used, the power required was still very great and the work altogether too forcible for present day requirements. Whether the centrifugal is the offspring of this old machine or not, it is difficult to explain why further improvement was not attempted in a machine of such proved capacity. Centrifugals have in recent years been largely applied, and with some of the first forms, the objectionable features of the old wire machine were not altogether abandoned; silk in most cases took the place of wire, and beaters were substituted for internal brushes. After all, we are not sure that the use of the term "beaters" has not been unfortunate; it may seem appropriate to those disciples in milling whose energy is always ahead of their work, and who are ever seeking out the shortest way and forcing the work; such may be counted on to try to their utmost what beaters can do.

It will be claimed, in some circumstances, that material must be well loosened up before it can be freely dressed, and there would be little objection to this, if the two things did not take place

together; but as not unfrequently happens, a more energetic speed of beaters is employed in proportion to the fineness of the mesh, and reels being heavily fed a state of things is brought about which is destructive to the silk, and not conducive to good separation. It were better almost that the reels were blind for a short distance from the head, while this more active agitation takes place, and afterwards the dressing could proceed through the rest of the reel in a more rational manner, supposing it cannot be accomplished in a better way, of which more is to be said. The old bolter, not so well known as the wire machine, had a loosely fitting cloth, which when charged with meal, was thrown out by the rapid rotation of the reel itself, and the cloth coming in contact with beater bars fixed within a small distance of the reel's periphery, the flour was dashed out in this way, but not so effectively. Springs were applied to the tail of the cloth to give a more uniform tension, but the capacity after this, seldom exceeded five sacks per hour, the clothing being still coarse. Much could not be expected from the brush machine and bolter in the way of separation worked as described, and little appears to have been attempted save a rapid and forcible bolting; very commonly the flour offals and bran were obtained at a single operation, just as one might attempt to bolt all the meal in one of the horizontal bran dusters still in use. There were occasional instances of rebolting, but a section of the public has always had its eye on the miller, and formerly this was an innovation, regarded with much suspicion. The deprivation in this case seems to have been different to present day complaints. It was urged that the poorer classes were robbed of the best and whitest flour and received more than their fair proportion of bran, yet it is urged now by some that they are being starved with too much of the former and too little of the latter.

In the old styles of bolting there was not much of method—it hardly deserves the name of dressing—but it was necessary to refer to them to show the direction in which we are going.

The innovation of silk reels from France must have been a noticeable change, when their extraordinary size and diminished capacity is considered in relation to the practice it supplanted. We may infer that a demand for better dressed flour caused a reversion to this more rational manner of sifting, for not only was a different material used for the covers and a finer mesh, but the effect was a near approach to the older system of sifting with sieves. In many of these reels the flour offals and bran were separated in a single chest, the bran present not being without effect in helping to clear the meshes of the flour sheets and keeping the material more loose and easy to dress. The old wire machine was sometimes placed in advance, having a coarse cloth to scalp off the rough bran before the rest was passed to the silk reel. Sometimes a series of reels arranged to follow each other would be seen in the better mills, the work being more subdivided. Knockers, brushes, curtains, currents of air drawn through the silk were, in turn, called up as devices to keep the mesh of the silk clear and keep pace with the recurring difficulties of dressing.

These latter were occasioned sometimes by conditions of the atmosphere, at others by the condition of the material itself, as in bad harvesting of the grain, its improper preparation for

grinding, and in the mode of grinding itself, not to mention inadequate dressing surface, and this only imperfectly used. In part, these drawbacks may be obviated by preserving more uniform temperature within the mill by conditioning the grain before grinding, on the kiln or with more modern apparatus designed for this end, or the meal may be dried or cooled after grinding and before dressing. It was formerly the practice to allow the ground meal to stand for some days in sacks before dressing; there was manifest advantage in this, the slight fermentative change resulting from the moderate grinding heat gave a more pleasant aroma to the flour, and it separated better, but this has succumbed to more go-ahead and automatic methods of working. It was the American practice to foster rapid grinding, the output of stones being more than twice that usually practised in this country; the meal was delivered dangerously hot, and required it should be promptly cooled. Means were devised for this end rather than to moderate the practice of large outputs, and this enabled the bolting being proceeded with, disposing of all delay. As the temperature rises, within certain limits, fermentation proceeds more rapidly, and not unnaturally it has been found safest to grind as cool as possible, but the amount of moisture present in the grain or supplied to it during the tempering process, as also the period of time during which the heat and moisture are together retained, are factors to be considered in relation to fermentative change. They are also likely to create difficulties of dressing, and, if such be overcome whilst in this condition, the retention of moisture in the finished flour in certain circumstances places it again peril.

We have now a greater number of operations to follow in a milling process and the application of reels to these is in some cases preparatory in addition to their use for dressing the finished flour. There are special modifications for special circumstances which can only be glanced at, whilst there are universal applications to all the purposes of a mill. Without questioning the efficiency of any reel or system of reels, the requirements under various circumstances, and the manner in which these are or may be met, seems fair matter for consideration. It will be sufficient to refer only to such features as seem most important when applied in the different operations of scalping, grading, dusting and dressing the finished flour under the new systems of milling.

Scalping reels are commonly associated with the breaking processes of milling. In lower grinding systems they were styled catch reels, and much larger. In addition to the breaking down, there are other stages during the reduction of semolinas and branny matters where scalpers can with equal advantage be employed as a preliminary to further dressing. In modern systems it is well known the character of the breaking vary from the breakings; they are often of a brittle and fragmentary nature, combined with a small amount of semolina and flour, and towards the end we have a pliable, curly bran, associated with softer material. In the majority of cases there is no attempt to remove detached particles of bran at each break by aspiration. The bran, having to run the gauntlet of a series of grooved rolls working with differential speed, could not be expected to emerge entirely without injury, and the

risk in this respect is increased as the rolls it passes through, are set closer. Moreover, if the mode of scalping be that of the simple hexagon reel or sifter, these detached particles are in large measure floated off in each reel, etc., accumulating faster in the latter breaks, and giving the meal from these a more discolored appearance than if the loose bran had been aspirated away each time. Where discoloration of the break meal occurs, it is more to be attributed to the retention of so much bran under treatment in the rolls than from any supposed rasping action of wire coverings in the scalpers described. This latter hypothesis starts off with the idea that the bran is in almost perpetual contact with the wire cover from one end of a reel to the other, and after counting up the number of reels in a series, a very imaginary amount of evil is debited to them. Usually a careful miller mells such of his wheats as require it before breaking down; his apprehensions do not extend to any chipping or rasping of the material within such reels, since the light and coarse particles will ride on the surface of the material until as much is discharged through the cloth as required when the time has come to throw off what remains.

The comparative absence of friction in the hexagon reels have caused them to be preferred for scalping over some centrifugals, and they were adopted without attempt at improvement. As with larger reels of this kind, the dressing surface was not well employed, and the cylinders were set with sufficient inclination to forward the material through them. Their speed of rotation is limited, as is well known, too high a speed causing the material to cling to the cloth, which carries it round and prevents dressing; too low a speed, on the other hand, not giving that free rolling motion to the meal which throws the coarser matters to the surface, facilitating a cleaner separation. The reel bars in these are an obstruction, and objection is raised to them on account of their elevating material a certain distance, distance, from whence much of it has an unbroken fall on to the bottom of the reel, producing irregular dressing. These successive thuds are noticeable, and though it does not follow that the material is precipitated upon bare cloth always, it is an irregularity that called for a remedy. The congregation of material in the lower part of the reel is not favorable to dressing, probably not more than two of the sections formed by the reel bars—and these on the rising side—can be counted on as dressing surface. This traveling over a large surface, with little dressing effect, in part explains why less surface will suffice when more effectual methods of distribution are employed. Currents of air drawn through the cloth are not now in much use; they are disturbing to distribution and interfere with the order in which meal naturally arranges itself in sliding over the cloth.

Wire covering is a necessity in handling gritty substances, but it is a somewhat rigid material—as also perforated sheet metal—and when the meshes get blocked the matter is not easily dislodged without brushing. The application of outside brushes is more simple in the case of horizontal reels, whether these be prismatic or cylindrical, and there is a disposition to favor the latter. In conjunction with proper means of distribution this shape can be made more effectual; but without it the circular form is not so good a sifter as the hexagon. Usually such methods seek to elevate the material, discharging it against the cloth, heretofore of little effect, i. e., the top part of the reel, and by this or other means the material is at the same time propelled forwards. Obstructions, such as real bars, are in most cases removed as far as possible, so as not

to interfere with the free rolling of meal over the surface of the cloth. The aim is to cause the reels to dress equally over their whole circumference, which with this type seems hardly possible, though considerable improvement has been effected in this direction.

In some reels the bars or rails are retained as lifters, but are not placed quite close to the cloth, allowing some portion to slide down behind them; whilst in the higher part of the reel the material on the bars is lifted or trailed over a fixed saddle conforming to the shape of the reel. Having reached the top, the saddle on the down side is formed with a slope sufficient to discharge the material down it, throwing it against the reel cloth on this side, and channels are formed on this slope to pass forward the meal towards the tail. It is plain the whole circumference here is not utilized—probably the half of it could not be fairly counted upon to dress—the use of the saddle prevents the meal on the lifting bars falling back as in the hexagon reels, and the bars themselves are not a serious obstruction to sliding of the material, or to the cloth itself; yet the top part of the reel is doing no dressing work, and the sides next to nothing, on account of the too vertical disposition of the cylinder side walls for a portion of the distance traversed. Dressing commences where the gravity of the meal is sensibly felt against the cloth, which is in the lower half of the reel. The frequent lifting and increased sliding motion set up here is so far an improvement on older reels, and may be expected to have greater capacity and dress better, owing to this better distribution.

Another means, having the same end, consists in the insertion of a cylinder of somewhat less diameter than the reel within and rotating with it; upon the surface of this cylinder, serrations are formed or lifters placed, spirally arranged and in miniature not unlike a grooved roll. In the intervening space between this cylinder and the reel cloth the meal is introduced; the serrations or lifters continuously raise the meal as it is being dressed, throwing it lightly against the cloth, the spiral arrangement of the lifters propelling the material forward. The space allotted for the handling of meal is limited by the introduction of the inner cylinder, which may not be a fault where machines are properly fed. This form, like the preceding one, has better distribution and fewer obstructions; the meal has free motion and the lifters may be considered as continuously skimming the lighter and coarser impurities rising to the surface. Akin to this type is a reel in which the lifters are parallel, but fixed upon the edge of a spiral screw, which may be regarded as taking the place of the internal cylinder. This spiral is used to forward the meal lengthwise, and of course it does not occupy the internal space of the reel in the same way that a cylinder does, and any risk of the meal wedging itself between the cloth and cylinder, as in overfeeding, is avoided. The cylinder machine, on the other hand, carries more lifters or serrations on its surface, and any meal falling from these does not fall through space to the bottom of the reel with non-dressing effect. Of these two types there is not much to choose, but it is too much to say the whole circumference is made to dress in either. If the reel rotates at a speed to cast meal from the lifters towards the cloth before it arrives at the top, then there is none to cast on the down side; if, on the other hand, they do but lift for the most part up the rising side on passing over the top, they may be discharged with some little impetus against the cloth on the down side, in addition to the gravity of the meal itself, as lifters may, of course, be assumed to be overcharged and part with some of the material being raised, which, in the act of sliding back, would be dressed in the lower half of the reel as before described. We have also

means for elevating meal within the reel, which, on attaining the top, is tilted over, discharging more energetically against the cloth than the before-mentioned fixed lifters. These discharges are, however, of a more intermittent kind. It is possible the capacity of these latter may be a little greater through this additional energy, given, by tilting, but in all we see a difficulty in attaining to a continual sifting over the whole circumference. Their adaptability to the various purposes set forth we shall attempt to summarize at the end; meantime, we wish to refer to some features in centrifugal reels. These, as is well known, have beaters rotating within the reel at a higher speed than the latter, effecting more active distribution. As in the old wire machine, the reel has been made a fixture, and in occasional instances caused to rotate in opposition to the beaters without moderating the speed of these latter. In these cases the cloth has suffered through the greater resistance offered in such as have tight cloths, but there was an attempt to introduce a fixed reel having a loosely fitting cloth, and this machine had also fewer beaters. The manner of feeding it along its length instead of the end assisted distribution, but what was the record of its durability we have not enough experience of it to enable us to say. The rotation of the reel in the same direction as the beaters at slower speed was adopted in the old wire machine, and it is retained in the centrifugal; it lessens the wear on the cloth, because it is a yielding surface, instead of a steadfast or opposing one. The beaters are of hard wood or steel commonly, and disposed with a certain amount of draught to cast the material outwardly against the cloth in the most favorable way for dressing, at least this is the explanation. Some time ago edges of such beaters were turned back, possibly with the idea of striking the material in a direction more at right angles with the surface of the cloth. They, however, worked so near to the surface as to cause undue compression on it in the lower part of the reel where the most material was, and in the case of softer material had also a plastering action against the cloth, which kept the outside brush busy in removing it. The advantage of this was questionable for dressing, and often the beaters were plain strips as described. These, when run at a high speed, cause such a dispersion of the meal before them as to retard dressing, working more like a fan in such cases, which can be more or less obviated by freely perforating the beater strips. This is also avoided in a large measure by beaters that are not continuous strips, but which allow air to pass. In some reels the beaters are so numerous as to be an obstruction to each other, interfering with the throw against the cloth. Probably this was intended to prevent accumulations in the bottom of the reel, but benefit has often resulted by the removal of every other beater. In all these the meal is discharged to one side, according to the direction the beaters run. These are not capable of raising meal from the reel bottom and casting it over the whole reel surface with equal dressing effect. They have a greater capacity over slow reels because of the more energetic action of the beaters. The accumulation at the bottom of the reel is a drawback, and it is putting an impossible duty on the beaters to disperse this and at the same time to distribute it properly, in addition to distending the cloth until it sometimes bursts. Whether the means now tried of inter-elevation be the best that can be adopted remains to be seen, but to relieve the reel of accumulations at the bottom and deliver this upon the beaters at another portion of the circumference is undoubtedly a step in the right direction, utilizing more of the surface for dressing. Of these there are two recognized methods. One consists of channels or pockets in the cylinder frame, presenting no obstruction to the beaters, which may be placed com-

paratively close to the cloth. The construction of the cylinder is that of segments bolted together, the ribs and rails of which take from the dressing surface, and the introduction of these channels is a still further curtailment of dressing area. An undoubted advantage is gained by the elevation of the meal over non-elevating reels for the reasons given, and it suggests itself that more frequent elevation of smaller quantities might be still more effectively combined with a construction of cylinder giving the largest possible dressing area. The channels or elevating pockets naturally require to be made to discharge their material with certainty at the highest point. The type mentioned empty themselves before reaching so high a point.

In the other form referred to, special swing elevators are fixed inside the reel near to the cloth. There are more of these than in the first-named reel, and they gather up the meal and carry it to a higher point, where they tilt over and discharge their contents completely. This construction requires the beaters to be placed at a greater distance from the cloth in order to clear these internal elevators. The further off these are their force becomes more spent on reaching the cloth and additional speed is required to compass this. It is conceivable, too, when the beaters run within these elevators, that the meal will be often thrown against them and rebound, to say nothing of the trituration that may ensue. A third type, which has obtained no extensive adoption here yet, is provided with two sets of beaters—or we may call them such—one set close to the cloth is curved to lift the material and the meal falls from them at a certain point on to an internal set of beaters curved to throw it out against the cloth. These are said to have an improved capacity, and much may not be said against this. The largest dressing area could be preserved with this type, yet it will be seen the inner set may discharge against the outer set, even if disposed between them. The speed maintained for the inner beaters to throw the meal far enough entails so much greater periphery speed for the outer set that the meal must be cast high when lifted from the bottom. Then something is to be said about centrifugals being used as detachers after smooth rolling; when used as final dressing machines it would be well if this detaching could take place before entering the dressing reel. The reels in these cases must detach the flakes and not allow them to pass over the tail, and the speed kept up can be too forcible for good dressing. This is more troublesome in the case of soft stuff.

There are the special combinations of reels intended to scalp and redress and save space, some of commendable, some of doubtful efficiency for the double purpose. These may be useful in smaller plants or confined situations, and would entail wearisome repetition to describe them all.

In the application of reels to the purposes mentioned we require in scalping reels the largest capacity in the least space. The centrifugal answers to this description, and has been freely used. Objection is taken to its trituration action, and we neither want to make flour nor abrade the bran in handling breaks. As shown, some improvements have been made in these reels, and it seems by no means impossible to apply them here at a speed just sufficient for the purpose, facing the beaters with leather or making them entirely of leather strips. The same may be said of it for dusting semolina and middlings; we want to adopt all means to remove the flour without making more in handling it. Applied to finish dressinging we are disposed to adopt them for dressing the soft and fluffy flours at the tail end of a process which requires more energetic treatment, and the beaters need not be faced with softer material. At suitable speeds we should prefer their use

with faced beaters in scalping, after smooth rolling of semolinas, counting upon a redressing of these sharper flours in improved slow reels, in this way the centrifugal would detach and scalp, and the slow reel would redress the reduced quantity, and give a superior flour—it is often the reverse of this. Slow reels, too, are thought best for most of the breaks: but on the ground of greater capacity and limitation of wire cloth surface, we suggest centrifugals. The latter are used to scalp the last of the breaks, which are not so gritty and destructive to the cloth.

Then, for grading, if a reel must be used, the improved slow reel is preferable to the centrifugal, though perhaps not the most perfect machine for the purpose. The material should be first dusted, and when graded we must try not to make more dust. To make some, is unavoidable, as the friction of these friable particles rolling amongst themselves produces dust. In grading, certain cloths are placed on the reel to sort out sizes corresponding to the mesh over which it travels; but as the material does not travel over a level surface, sizes that should pass through the mesh often pass over, and the next cloth of coarser mesh receives them, in its turn rejecting some sizes it was provided to pass. This is only an attempt at grading, and, properly speaking, such reels ought to be used as distributors to grading sieves, which could then more effectually complete the work. It may be considered that many salient features have been overlooked in regard to reels. It is possible; but the attempt to deal with every detail might be too formidable. Those features referred to, may strike others in a different light; but that is how the world is composed.—In *The Miller*, (London), January and March number.

By "EDIBLE".

NINETY THOUSAND DOLLARS.

Come to Indianapolis to Swell the J. B. Allfree Co.'s Capital.

THE city is to be congratulated on having an accession to its capital of \$90,000, through the reorganization of the J. B. Allfree Manufacturing Company, which is engaged in the manufacture of mill machinery and is at present located on Shelby street. The success of their business and the notice which their line of machinery has attracted in the milling world, drew the attention of some New York capitalists, who, without the knowledge of the company, began an expert examination of their line of machinery and methods of business, and were so well pleased that the manager of the company, J. B. Allfree, of this city, was recently surprised by a letter requesting him to come to New York for a conference. The writer was Mr. F. O. Matthiessen, the leading man in the sugar business of the country and many times a millionaire.

Mr. Allfree found that Mr. Matthiessen had had his attention called to the J. B. Allfree company, of this city, which up to that time, had been doing a successful business on a paid up capital of \$60,000. Mr. Matthiessen controls the patents on a German invention in the line of mill machinery and having made a thorough investigation as to the Allfree company, with the promptness characteristic of New York men, further surprised Mr. Allfree at the conference in New York by at once proposing to arrange with the Allfree company for the manufacture of this new machine in this country, in connection with its other line of machinery. To enable the company to enlarge and extend its business, he next proposed an increase of the working capital, and that he and his friends would pay in at once \$90,000 and furnish from time to time as much more capital as it might require to extend the business.

As a part of the reorganization, Mr. Matthiessen's proposition having been accepted, it was agreed upon that the company should at once build extensive

works to accommodate its increasing business, which will be done as soon as the building season opens. The patents owned by the company and the machines made by it enable it to furnish a complete equipment from the basement to the attic of the mill, and the unlimited financial credit which the firm now possesses will at once make it one of the most important enterprises in the country. The officers of the company are: Robert Shriver, president, of the First National Bank of Cumberland, Md.; J. B. Allfree, vice-president and general manager; M. H. Escott, secretary and treasurer, and William H. Ruef, superintendent, the three latter being citizens of Indianapolis. Notwithstanding the fact that as much as \$25,000 has been offered the company to remove its works and business into the gas belt, it is arranging for the erection of its plant in this city.—*Indianapolis News* (March 14).

LONGITUDINAL VS. GIRTH SEAMS.

WE have heard surprise expressed that boilers are made with triple riveted butt joints along the longitudinal seams, while the girth seams are only single riveted. It is true that such a construction hardly looks right, at first sight, to one who has never given the matter consideration; but a little investigation will show that the girth seam is even stronger, in proportion to the load it has to carry, than the longitudinal one.

The strain on the longitudinal seam, per inch of its length, is known to be equal to the

$$\frac{\text{diameter} \times \text{pressure}}{2} \quad (1)$$

This rule is demonstrated in all the textbooks on the subject, so that we need not repeat, in this place, the reasoning on which it is based.

To find the strain on the girth seam, per inch of its length, we have to remember that the only strain that comes on this seam is the pressure that acts on the heads of the boiler, and tends to pull it apart endwise. The area of the head being $.7854 \times (\text{square of the diameter})$, the total pressure upon it will be

$$.7854 \times (\text{diameter})^2 \times \text{pressure}.$$

This pressure acts endwise along the boiler, tending to pull it apart; and it is withstood by the plates of the boiler, and, where these come together, by the girth seams. The length of each girth seam is the same as the circumference of the boiler; that is, it is equal to

$$3.1416 \times \text{diameter}.$$

The strain on each end of the length of the girth seam is found by dividing the total strain upon it by the length of the seam. That is, it is equal to

$$\frac{.7854 \times (\text{diameter})^2 \times \text{pressure}}{3.1416 \times \text{diameter}}.$$

Since 3.1416 is exactly 4 times .7854, we find from above, by cancellation, that the strain on the girth seam, per inch of its length, is

$$\frac{\text{diameter} \times \text{pressure}}{4} \quad (2)$$

By comparing (2) with (1) we see that the strain on the girth seam of a boiler is precisely half of the strain on the longitudinal seam; so that if the former is half of the strength of the latter, the two are equally well adapted to the loads they have to carry when the boiler is in operation. If the boiler has a triple-riveted butt joint, with a strength of 87 per cent of the solid plate, the girth seam will be abundantly strong if it is equivalent to $43\frac{1}{2}$ per cent of the solid plate. Now a well constructed single-riveted joint may easily have a strength of 56 per cent, so that it would still be amply strong, even if a longitudinal joint could be made with a strength equal to that of the solid plate. In fact, if the girth seam has a strength of 56 per cent, the plates themselves should rupture longitudinally before the girth joint would give way.

Of course it will be understood that the

foregoing remarks apply only to boilers in which the construction and materials are perfect. As a matter of fact it is occasionally recommended that girth joints be doubly riveted, though this is done only when the particular circumstances of the case seem to require it.—*The Locomotive*.

DR. RICHARDSON ON ALCOHOL.

DR. B. W. RICHARDSON, who is one of the ablest physicians in Great Britain, says: I became an abstainer from alcohol for the most commonplace and selfish reason in the world, the instinct of self-preservation. From a lecture delivered in one of my experimental and practical courses to medical brethren, on December 7, 1869, I infer that I had got, at that time, very near to the practice of abstinence, and quite near to the truth; for I find myself closing the lecture with the following words: "Speaking honestly, I cannot, by any argument yet presented to me, admit the aleohols through any gate that might distinguish them as apart from other chemical bodies. I can no more accept them as foods than I can chloroform, or ether, or methylal. That they produce a temporary excitement is true; but as their general action is quickly to reduce the animal heat, I cannot see how they can supply animal force. I can see clearly how they reduce animal power, and can show a reason for using them in order to stop physical pain, or to stupefy mental pain; but that they give strength, i. e., that they supply material for the construction of fine tissues, or throw force into tissues supplied by other material, must be an error as solemn as it is widespread. The true character of the alcohols is that they are agreeable temporary shrouds. The savage, with the mansions of his soul unfurnished, buries his restive energy under their shadow. The civilized man, overburdened with mental labor, or with engrossing cares, seeks the same shade; but it is shade after all, in which, in exact proportion as he seeks it, the seeker retires from the perfect natural life. To resort for force to alcohol is, to my mind, equivalent to the act of searching for the sun in subterranean gloom until all is night. It is time now for the learned to be precise respecting alcohol, and for the learned to learn the positive value of one of their most potent agents for good or for evil; whereupon, I think, they will place the alcohol series in the position I have placed it, even though their prejudices in regard to it are, as mine are, by moderate habit, but confessed inconsistency, in its favor." I have heard it said many times that this was the strongest utterance I ever made against alcohol; because, when I made it, I was not an abstainer. But I have a word more to add. At the time when the lecture above named was delivered, I had looked only at the physiological side of the matter. Afterward I studied, in the same experimental way, the power of alcohol in producing disease. Thereupon I discovered that so potent is alcohol in producing structural and fatal disease, just as certainly as I could make an animal dead drunk by it, so I could conjure up organic disease to order, if I may so put it, according to my will, and almost according to fixed time and season. Also, I detected that the fatal changes were much more quickly and surely brought about than I had ever supposed possible. I was startled at what I witnessed, and, selfish-like, applied the moral. I said to myself, May be I am experimenting on myself. But why should I? "If thy right hand offend thee, cut it off," was the daily plea of conscientious knowledge; and, at length, the plea prevailing, I cut off alcohol root and branch. Then, when I found how strong and healthy I was, as well as safe under total abstinence; I thought it my duty, even at the risk of speaking less forcibly against alcohol than I might do

if I partook of it—as the spirit of evil suggested—I began and continued boldly to expound all the facts; and that is the way I became an advocate of total abstinence, as well as a total abstainer.

AN UNUSUAL ACCIDENT IN A BOILER ROOM.

A PECULIAR accident came to our notice not long ago. A fireman had allowed the pressure in his boiler to go down at night, and had then opened the blow-off valve and gone home, leaving the boiler to empty itself during the night. In the morning he entered the boiler room and closed the blow-off valve, as no water was escaping through it, and presumably there was none left in the boiler. He next loosened the front hand-hole plate and knocked it in. A considerable amount of air rushed in, and immediately afterward a stream of hot water burst forth, throwing the fireman against a wall opposite the front of the boiler, and scalding him severely.

The explanation of this strange action seems to be that there was little or no pressure in the boiler when the blow-off was opened, and no vent through which air could enter. The result would naturally be that water would escape through the blow-off until a partial vacuum was formed in the boiler. Then the flow of water would cease, and instead of an empty boiler when the blow-off was closed next morning, the fireman had a boiler nearly full of scalding water. Upon opening the hand-hole a considerable amount of cold air rushed in, owing to the partial vacuum inside. As this air bubbled up through the water it became heated and expanded so rapidly that the pressure in the boiler immediately rose sufficiently to force some of the scalding water out into the fireman's face. This is the explanation that seems to us most likely, though it must be confessed that one would hardly expect any very violent expulsion of water from such a cause.—*The Locomotive*.

BENEFIT OF COMPETITION.

COMPETITION has developed many new and important features in mill machinery and milling systems. It has been brought about principally by the wide-awake and energetic mill builders. It cannot be disputed that milling engineers and mill builders have a better opportunity than regularly employed millers for making experiments and perfecting machinery in general. One can build a better mill for a given sum of money at this time than ever before. This is true not from the fact that material and labor are cheaper, but owing to the energy and thought which are put into the planning and general arranging of mills. Competition has worked wonders for millers. Not the competition which cuts down prices, but the competition that makes men thoughtful. Competition has made a difference in the construction of mills which can only be appreciated after one has recalled the dirty, irregular, ill-contrived mills of the old millstone days. The art of mill building, like all other industrial arts, and like all human knowledge, grows or advances only as new facts are brought to light and demonstrated to be facts.—*The Roller Mill*, Buffalo.

A PLAIN SPEAKING CLERGYMAN.

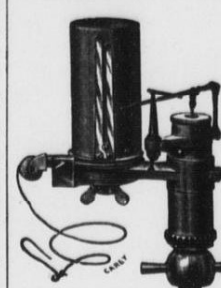
According to the London *Figaro* a Welsh preacher of the Calvinistic Methodist persuasion, when lately delivering his farewell discourse to the congregation he was about to leave, concluded his remarks as follows: "And now, brethren, I will tell you why it is that my separation from you does not seem to me altogether pain-

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125-bbl. roller flour mill, 4 stories, frame with stone basement, including plenty water power for 4 water wheels. Flume, dam and mill in good condition. Frame warehouse and office close by, and long sheds for farmers' teams. The whole property in full operation 16 hours daily, doing profitable business. Has big grist business. City of 2,000 population; two railroads. Good trade with citizens, farmers and lumber men, for flour, feed and rye. Good local grain, a d plenty of it. Good place to live. Has good schools and churches, and close to other large cities. Owner non-resident, which is reason for selling. Address,

MENASHA WOOD SPLIT PULLEY CO., MENASHA, WIS.

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We offer for sale a first-class steam flouring mill at a price that will astonish you. Capacity 100 barrels, situated in the Solmoon Valley, the best wheat country in Kansas. In good repair, and running steady. Elevators and warehouses complete. On the U. P. R. R. Address

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FOR SALE.

Having lost my water power, I offer for sale my complete outfit for a small mill, consisting in part of one of E. P. Allis Co's 4 break roller mill, 2 pairs single rolls, burrs, bolts, purifiers, cleaning machines, scales, elevators, belting, etc. Correspondence solicited. M. J. LAIRD, Winona, Minn.

ful. It is for three reasons, dear friends. Firstly, because you do not love me; secondly, because you don't love one another; and thirdly, because God does not love you. For if you had loved me you would have paid me those arrears of my beggarly stipend you still withhold; and if you loved one another I should have had the pleasure of celebrating many more marriages among you; whilst if God loved you he would have had, ere this, called many of you above, and I should have had more funerals to conduct." That minister was not asked by his deacons to withdraw his resignation."

MUCH of the advertising of the present day is no more than intelligent adaptation. With this idea in mind note the following:

An ingenious four-year-old boy up town amazed his father a day or two ago by swaggering into the paternal presence with the remark: "Papa, I've made a good motto for undertakers to put in their shop windows." And the indulgent father, preparing to look amused, asked: "What is it, my son?"

"Why, it is this," explained the youngster: "You kick the bucket; we do the rest."

And the father's amusement and amazement were looked without more preparation.

RECENT MILLING PATENTS.

The following are a list of Patents relating to Milling and Grain-handling appliances, granted during the month of February, as specially reported for the U. S. MILLER, by Chas. E. Brock, Patent Attorney, Pacific Building, Washington, D. C.:

No. 445,533, Wheat-heater, A. H. Brockman, Minneapolis, Minn.

No. 445,821, Grinding-mill, V. L. Rice, New York, N. Y. This consists of an internally-circular chamber, a main shaft arranged above the center of the same, a roll-shaft connected by a universal joint with the main shaft in a line with the center of the chamber, having a roll at its lower end for revolving around the interior of the chamber, and a spiral flange around the roll-shaft.

No. 446,026, Pneumatic grain transfer, storage and preservation station, L. Smith, Chicago, Ill., assignor to the Smith Pneumatic Transfer and Storage Company of West Virginia.

No. 446,027, Floating grain-silo, L. Smith, Chicago, Ill., assignor to the Smith Pneumatic Transfer and Storage Company, of West Virginia.

No. 446,040, Grain-apron, J. E. Van Horn, Henderson Station, Ill.

No. 446,043, Dust-collector, H. Bittenger, Germany.

No. 446,155, Flour-bolt, C. Schied, Rochester, N. Y.

No. 446,219, Grinding-mill, J. & A. J. Jones, Thorold, Canada.

No. 446,266, Automatic weighing and packing machine, J. A. Ostberg, Des Moines, Iowa.

No. 446,365, Fanning-mill, J. Pelzer, J. Werel, Humbird, Wis.

No. 446,507, Dust-collector, E. Bretney, Indianapolis, Ind., assignor by mesne assignments, to the Cockle Separator Manufacturing Company, Milwaukee, Wis.

No. 446,566, Grain-conveyer, J. B. Bartholomew, Des Moines, Iowa.

No. 446,759, Means for manufacturing hominy-flakes or corn flakes, J. H. Little, Yellow Springs, O.

No. 446,788, Grain-register, J. H. Peachey, Allensville, Pa.

No. 446,794, Grain-separating apparatus, L. A. Simons, Omaha, Neb.

No. 446,876, Middlings-purifier and dust-collector, F. C. Miller, J. H. Walker, Oregon City, Oregon. This covers the combination, with the frame and a screen mounted to swing, of an arm adapted to be engaged by an eccentric, a link pivoted to the lower end of the arm and to the frame, a second arm adjustably secured to the first arm and a link pivoted to the upper end of the second arm and to the screen.

No. 446,881, Alarm-bell for grain-elevators, G. W. Nye, Chicago, Ill.

No. 447,026, Dust-collector, J. K. Hallowell, Camden, N. J.

No. 447,072, Feed-device for grain-cleaning machines, roller mills, &c., W. W. Huntley, Silver Creek, N. Y., assignor by mesne assignments to Huntley, Cranson & Hammond, same place.

THE FUTURE OF RYE FLOUR.—The New York *Commercial Bulletin* has the following: "Mr. R. W. Thatcher, was on 'change the other day and gathered quite a crowd of flour men by the announcement that he expected to see rye flour cross the price of the best patents, before we go into another rye crop, because Germans prefer rye bread at the same or a higher price than wheat, and because the rye grain to make a barrel of flour costs as much as No. 1 hard wheat, taking, as it does, one bushel more of rye to a barrel of flour than of wheat."

KNEW HER BY HER BREAD.—"Madame," said Puffer, addressing Mrs. Skimpin, at the breakfast table in her select boarding house, after gnawing at an especially hard piece of last week's bread, "Mrs. Skimpin, you believe thoroughly in the Bible?"

"I trust I am a sincere professor," said that amiable lady bridling in anticipation of the usual attack.

"And you believe that all set down in it is true and should be carried out by good Christians?"

"Certainly, I do; certainly, Mr. Puffer."

"I thought as much, for it is written in it that by the sweat of his brow shall a man eat bread."

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Cleveland, Cincinnati, Chicago & St. Louis
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The Only Line from Chicago running Solid Vestibule Trains into Central Union Depot, Cincinnati, where connection is made with Through Car Lines for Florida, avoiding all disagreeable transfers.

Through Tickets via the Big Four Route can be procured at all Ticket Offices in the Northwest.

O. C. MURRAY, Traffic Manager. D. B. MARTIN, Gen'l Pass'r Agent, CINCINNATI, O.



This is not a puzzle, neither is it a theorem in geometry, it is merely intended to call attention to the fact that the WISCONSIN CENTRAL LINES form the direct route between Chicago and Milwaukee and the points named above. Through Fast Trains with Pullman Vestibuled Dining Room Sleepers. Meals served in the "Central's" famous Dining Cars.

For tickets, Sleeping Car reservations, time tables, etc., apply at City Ticket Office, 90 Wisconsin Street, or at New Passenger Station, Fourth Ward Park.

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Colonists for Montana, Oregon, Washington or British Columbia points should take no other line than the Northern Pacific Railroad.

This railroad, with its main and branch lines, has brought into communication with the east all prominent sections of the great north-west. It is the only line traversing Montana and Washington. It is the only line running through trains from the east to and through the State of Washington. It is the short line from St. Paul to Butte City and Helena, Mont., Spokane Falls, Wash., and Portland, Oregon, and the only all rail line to Tacoma and Seattle, Wash.

Under present arrangements Pullman sleeping cars and furnished tourist sleepers are run via the Wisconsin Central, and Pullman Palace Sleepers via the Chicago, Milwaukee and St. Paul, and Northern Pacific from Chicago through to the Pacific coast without change.

In addition to this service the Northern Pacific runs on its through express trains regular day coaches, dining cars and free colonist sleepers from St. Paul to Tacoma and Portland.

The Northern Pacific line allows the holders of second class tickets to stop at Spokane Falls, Wash., and at all points west thereof, ten days at each place desired. This will enable settlers to thoroughly examine all lands in the new State before selecting a permanent location. No other line offers holders of second-class tickets an opportunity of examining all sections of this great State without the payment of additional fares of from \$5.00 to \$20.00.

For Maps, Time Tables, and Illustrated Pamphlets, or any special information desired, address your nearest ticket agent, or CHAS. S. FEE, Gen'l Pass. and Ticket Agent, St. Paul, Minn.

The Winter Resorts of Florida and the Sunny South.

At no time in the history of southern travel have the indications pointed to so brilliant a season as the Winter Resorts of Florida and the South as is promised for 1890-91. At Jacksonville, St. Augustine, and along the Indian River extensive preparations have been made for the entertainment of northern guests, and all visitors can rest assured of the old-time hospitality for which the southern host is famous. With its customary enterprise, the Big Four Route, "The Great Florida Line," has placed on sale round-trip tickets at greatly reduced rates, and made special preparations to handle the southern tourist business. All persons contemplating a trip to Florida should ask for tickets via that popular line. Solid vestibule trains run daily between Chicago and Cincinnati, equipped with private compartment buffet sleeping-cars, and elegant parlor cafe dining-cars, lighted by gas and heated by steam, making direct connection in Central Union Depot at Cincinnati with through trains for all points in the South. Ask for tickets via the Big Four Route.

D. B. MARTIN, General Passenger Agent, Cincinnati, O.

"THE FINEST ON EARTH."

The Cincinnati, Hamilton & Dayton R. R. is the only line running Pullman's perfected safety vestibuled trains, with chair, parlor, sleeping and dining car service between Cincinnati, Indianapolis and Chicago, and is the only line running through reclining chair cars between Cincinnati, Keokuk and Springfield, Ill., and combination chair and sleeping car Cincinnati to Peoria, Ill., and the only direct line between Cincinnati, Dayton, Lima, Toledo, Detroit, the lake regions and Canada.

The road is one of the oldest in the State of Ohio and the only one entering Cincinnati over twenty-five miles of double track, and from its past record can more than assure its patrons speed, comfort and safety. Tickets on sale everywhere, and see that they read C. H. & D., either in or out of Cincinnati, Indianapolis, or Toledo. E. O. MCCORMICK, General Passenger and Ticket Agent, Cincinnati, Ohio.

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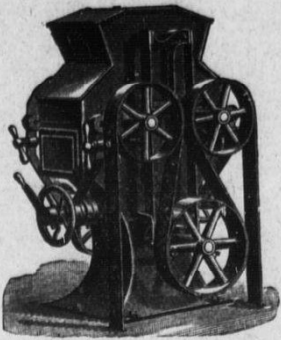
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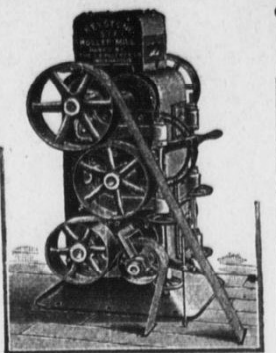
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FOR 1890-1891



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2. A list of miscellaneous mills, such as Corn, Oatmeal, etc.
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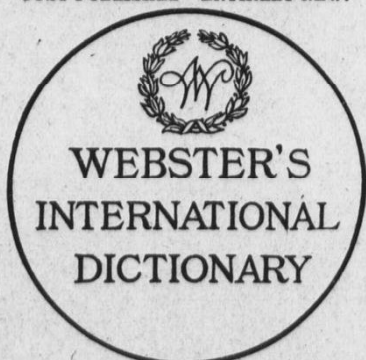
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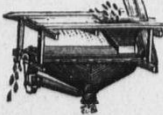
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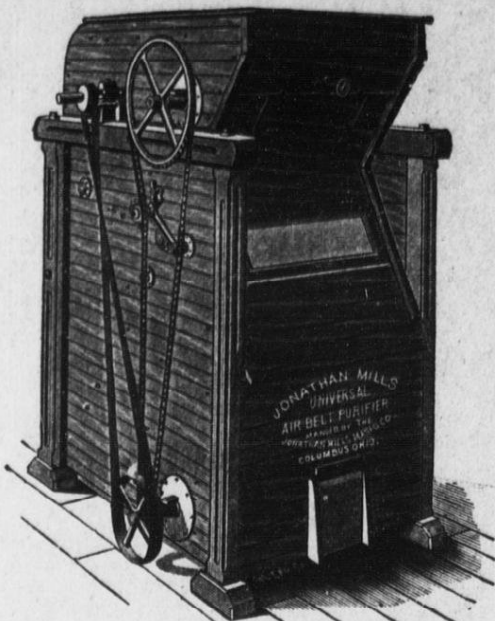
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THE

DUNLAP

WAS CHOSEN.

WITNESSETH:

THE BRADFORD MILL CO., Cincinnati Ohio:

Gentlemen—Mr. Clark has just given me his order for the Dunlap Bolt, and wants it shipped as soon as possible. Make up and ship with the Bolt a Conveyor as per enclosed sketch. * * *

AKRON, OHIO, September 23, 1890.

Respectfully,

FRANK E. NEAR.

OFFICE OF THE SEIBERLING MILLING CO.

THE BRADFORD MILL CO., Cincinnati, Ohio:

Gentlemen—Yours of yesterday received, and I wired you this morning "yes," as per your instructions. The sketch is all right. Make the Conveyor good and strong.

AKRON, OHIO, September 27, 1890.

I told Mr. Near that he need not have cloth sent with the Dunlap Bolt, as I have the one here that was used in the test. I will use same numbers on the new machine.

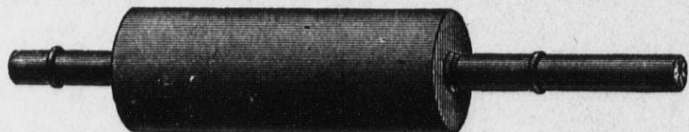
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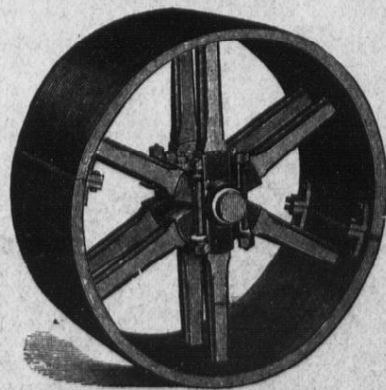
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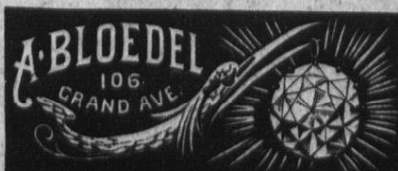


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